



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Governor

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June 17, 2014

Tawanda Maignan, Team Leader
Emergency Response Team
U.S. EPA Office of Pesticide Programs
Document Processing Desk (EMEX) Room S4900,
One Potomac Yard
2777 Crystal Drive
Arlington, VA 22202

Re: 2014 New Jersey Request for FIFRA Section 18 Specific Emergency Exemption under Recertification for Bifenthrin Control of Brown Marmorated Stink Bugs on Apples, Peaches and Nectarines.

New Jersey Department of Environmental Protection Bureau of Licensing and Pesticide Operations asks that this specific FIFRA Section 18 Exemption application for the use of bifenthrin on apples, peaches and nectarines to control the brown marmorated stinkbug be processed as eligible for a streamlined recertification request as authorized by 40 CFR 166.20(b)(5).

No changes in previously approved bifenthrin use patterns and rates for apples, peaches and nectarines are sought for 2014. The requested effective exemption date is June 17, 2014 through October 15, 2014. New Jersey is one of the several Mid-Atlantic States asking for this exemption. Please refer to the enclosed data to support this request.

United Phosphorous, Inc.

Bifenture EC Agricultural Insecticide [EPA Reg. No. 70506-57]:

EPA File Symbol: Section 18-2014-NJ-05 (Apples), Section 18-2014-NJ-06 (Peaches),
Section 18-2014-NJ-07 (Nectarines);

United Phosphorous, Inc.

Bifenture 10DF Insecticide/Miticide [EPA Reg. No. 70506-227]

EPA File Symbol: Section 18-2014-NJ-08 (Apples), Section 18-2014-NJ-09 (Peaches),
Section 18-2014-NJ-10 (Nectarines);

FMC, Corp., Ag. Products Group

Brigade WSB Insecticide/Miticide [EPA Reg. No. 279-3108]

EPA File Symbol: Section 18-2014-NJ-11 (Apples), Section 18-2014-NJ-12 (Peaches),
Section 18-2014-NJ-13 (Nectarines).

All applicable directions, restrictions, and precautions on the EPA registered product labels as well as those on these directions for use must be followed. These directions for use must be in the possession of the user at the time of pesticide application. Any adverse effects resulting from the use of this product under this emergency exemption must be immediately reported to the New Jersey Department of Environmental Protections.

If you have any questions pertaining to this matter, please contact Areta Wowk at (609) 530-8009.

Thank You,

Areta Wowk

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c: Marion Johnson, USEPA HQ
Audrey Moore, USEPA Region 2
Dean Polk, Rutgers Department of Entomology
Patricia Hastings, Rutgers, RCE

Emergency Exemption (FIFRA Section 18) – Expedited Request

New Jersey Department of Environmental Protection Bureau of Licensing and Pesticide Operations requests a specific emergency exemption under the provisions of section 18 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended, for use of **bifenthrin** formulated as the FMC product **BRIGADE WSB INSECTICIDE/MITICIDE** (EPA Reg. No. 279-3108), and the United Phosphorus, Inc., products formulated as **BIFENTURE EC AGRICULTURAL INSECTICIDE** (EPA Reg. No. 70506-57) and **BIFENTURE 10DF INSECTICIDE/MITICIDE** (EPA Reg. No. 70506-227), on apples, peaches and nectarines to control Brown Marmorated Stinkbug, and incorporates by reference all information previously submitted in the application dated June 25, 2013.

This is the fourth year that Professor Dean Polk of Rutgers University Experiment Station has requested this use. New Jersey Department of Environmental Protection Bureau of Licensing and Pesticide Operations asks that this specific exemption request be processed as eligible for a streamlined recertification request as allowed by 40 CFR 166.20(b)(5).

Also in accordance with the regulations, New Jersey Department of Environmental Protection Bureau of Licensing and Pesticide Operations hereby certifies the following (check one that applies for each numbered item) and, if applicable, attach additional information):

 X The emergency condition(s) described in the previously submitted emergency exemption application continues to exist.

1. X All information submitted in the previously submitted emergency exemption application is still accurate; **or**

 Except as expressly identified in the attached document, all information submitted in the previously submitted emergency exemption application is still accurate.

2. X The proposed conditions of use are identical to the conditions of use EPA approved previously for emergency EPA File Symbol #13-NJ-01 (apples), 13-NJ-02 (peaches), and 13-NJ-03 (nectarines), dated: 07-16-2013; **or**

 The proposed conditions of use are identical to the conditions of use EPA approved previously for emergency File Symbol # , dated: , except as expressly identified below:

- A.
B.

4. X There were no additional conditions or limitations on the eligibility for recertification identified in the previous notice of approval; **or**

 Any conditions or limitations on the eligibility for recertification identified in the previous notice of approval of the exemption have been satisfied (explanation attached).

5. X The applicant has not newly become aware of any alternative chemical or nonchemical practice that may offer a meaningful level of pest control; **or**

 If any such new alternative controls are available, documentation is provided that demonstrates that each such known chemical or practice does not provide adequate control or is not economically or environmentally feasible (explanation attached).

6. A final or interim report was submitted on , **or**

 X A final or interim report (dated: 3/13/14 and 5/8/14) is attached.



Section 18 Exemption

RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators, or persons under their direct supervision, and only for the uses covered by the certified applicator's certification.

For distribution and use only in New Jersey under an emergency exemption authorized under Section 18 of FIFRA

EPA FILE Symbol: Section18-2014-NJ-05 (Apples), Section18-2014-NJ-06 (Peaches),
Section18-2014-NJ-07 (Nectarines)

Bifenture[®] EC Agricultural Insecticide

EPA Reg. No. 70506-57

All applicable directions, restrictions, and precautions on the EPA registered product labels as well as those on these directions for use must be followed. These directions for use must be in the possession of the user at the time of pesticide application. Any adverse effects resulting from the use of this product under this emergency exemption must be immediately reported to the New Jersey Department of Environmental Protections.

This exemption is effective June 17, 2014 through October 15, 2014.

APPLES, PEACHES, NECTARINES

PEST CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Brown Marmorated Stink Bug (<i>Halyomorpha halys</i>)	5.12-12.8 fl. ozs./A (0.08-0.20 lbs. ai)	By Ground Only: Apply as a dilute spray (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre). Use higher rates under heavy insect pressure. For best control thorough coverage is necessary. Apply as necessary to maintain control using a minimum of 30-day spray intervals. Applications should be applied when populations reach locally determined economic thresholds. Consult the cooperative extension service, professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area. Restrictions: Do not apply more than 32 fl. ozs. (0.50 lbs ai) per acre per season. For all bifenthrin products used, do not apply more than a total of 0.50 lbs. ai/acre per season. Do not apply this product until after petal fall. Do not allow entry into treated areas for 12 hours following application (REI = 12 hours). Do not graze livestock in treated orchards or cut treated cover crops for feed.	14



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EPA FILE SYMBOL: Section 18-2014-NJ-08 (Apples), Section 18-2014-NJ-09 (Peaches), Section 18-2014-NJ-10 (Nectarines)

Bifenture[®] 10DF Insecticide/Miticide

EPA Reg. No. 70506-227

All applicable directions, restrictions, and precautions on the EPA registered product labels as well as those on these directions for use must be followed. These directions for use must be in the possession of the user at the time of pesticide application. Any adverse effects resulting from the use of this product under this emergency exemption must be immediately reported to the New Jersey Department of Environmental Protections.

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APPLES, PEACHES, NECTARINES

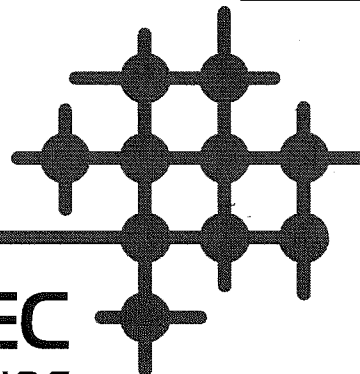
PEST CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Brown Marmorated Stink Bug (<i>Halyomorpha halys</i>)	12.8-32.0 ozs./A (0.08-0.20 lbs. ai)	By Ground Only: Apply as a dilute spray (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre). Use higher rates under heavy insect pressure. For best control thorough coverage is necessary. Apply as necessary to maintain control using a minimum of 30-day spray intervals. Applications should be applied when populations reach locally determined economic thresholds. Consult the cooperative extension service, professional consultants or other qualified authorities to determine appropriate threshold levels for treatment in your area. Restrictions: Do not apply more than 80 ozs. (0.50 lbs ai) per acre per season. For all bifenthrin products used, do not apply more than a total of 0.50 lbs. ai/acre per season. Do not apply this product until after petal fall. Do not allow entry into treated areas for 12 hours following application (REI = 12 hours). Do not graze livestock in treated orchards or cut treated cover crops for feed.	14

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GROUP 3A INSECTICIDE

BIFENTURE[®] EC
AGRICULTURAL INSECTICIDE**ACTIVE INGREDIENT:****Bifenthrin*** (2 methyl[1,1'-biphenyl]-3-yl) methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate 25.1%**OTHER INGREDIENTS**:** 74.9%**TOTAL** 100.0%

*Cis isomers 97% minimum, trans isomers 3% maximum.

**Contain xylene range aromatic solvents

This product contains 2 pounds active ingredient per gallon.

EPA Reg. No. 70506-57

KEEP OUT OF REACH OF CHILDREN**WARNING AVISO**

This label must be in the possession of the user at the time of application.

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.

(If you do not understand the label, find someone to explain it to you in detail.)

FIRST AID

If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN

This product is a pyrethroid. If large amounts have been ingested, the stomach and intestine should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided. Contains petroleum distillates. Vomiting may cause aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. FOR EMERGENCY MEDICAL ASSISTANCE, CALL THE ROCKY MOUNTAIN POISON CONTROL CENTER 1-866-673-6671.

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC 1-800-424-9300.

NET CONTENTS: _____ GALLONS

Manufactured for: **United Phosphorus, Inc.** • 630 Freedom Business Center, Suite 402 • King of Prussia, PA 19406 U.S.A. • 1-800-438-6071

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Warning

WARNING. May be fatal if swallowed. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield or safety glasses). Harmful if absorbed through skin or inhaled. Avoid breathing spray mist. Avoid contact with skin. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

Personal Protective Equipment (PPE):

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selection chart.

Handlers who may be exposed to the dilute through application or other tasks must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, Nitrile rubber, neoprene rubber or Viton
- Shoes plus socks

Handlers who may be exposed to the concentrate through mixing, loading, application or other tasks must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, Nitrile rubber, neoprene rubber, or Viton
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. Use with care when applying in areas adjacent to any body of water. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not make applications when weather conditions favor drift from treated areas. Drift and run-off from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin. Prior to use in a particular county contact the local extension service for procedures and precautions to use to protect endangered species.

Physical/Chemical Hazards

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Resistance:

Any insect/mite population may contain individual insects that may develop resistance to a specific pesticide product used in consecutive generations to control these pests. Prediction of resistance development is uncertain. Follow appropriate resistance management strategies. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance management and/or Integrated Pest Management recommendations for the specific site and pest problems in your area.

If resistance to this product develops in your area, you may find reduced control from this product or other products with a similar mode of action. If poor performance cannot be related to improper application methods or extreme weather, it is possible that a resistant strain of insect may be present. If poor control occurs and resistance is a reasonable cause, immediately consult with your local UPI representative or agricultural advisor for the best alternative method of control for your area.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during restricted-entry interval (REI) of **12** hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls.
- Chemical-resistant gloves, such as barrier laminate or Nitrile rubber or neoprene rubber or Viton.
- Shoes plus socks.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store above 40°F.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Container Disposal: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying.

[For containers smaller than 5 gallons] Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

[For containers larger than 5 gallons] Triple rinse or pressure rinse as follows:

Triple rinse: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after flow begins to drip.

Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Chemigation Use Directions

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.

Use a minimum of 0.75 inch of water per acre for LEPA irrigation. Use 1 to 2 pints per acre of non-emulsified oils when used as the diluent.

The set up and calibration of chemigation equipment are important to achieve control of target insect pests. Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water. Contact your State Agricultural Extension Service specialists, equipment manufacturers or other experts for advice on the suitability of the equipment set up for optimum control of the target insect pests.

A person knowledgeable of the chemigation system and responsible for its operations, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. Failure to cease application during a mechanical stoppage may result in undesirable residues to adjacent areas.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply Bifenture EC Agricultural Insecticide continuously for the duration of the water application. Dilute Bifenture EC Agricultural Insecticide in sufficient volume to ensure accurate application over the area to be treated. Use a minimum of 0.5 inch per acre of irrigation water for application by chemigation. No agitation is required if a suitable diluent is used. Conduct a diluent test to check that phase separation will not occur during dilution and application. If uniform dilution is not achieved during the entire period of application, undesirable residues or less than desirable control may occur.

Rotation Crop Restrictions

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days after the last application.

Tank-Mixes

Apply Bifenture EC Agricultural Insecticide with other products registered for the same crops. Read and follow all applicable directions, restrictions, and precautions on the EPA-registered labels for other tank mix partners.

Buffer Zones

Vegetative Buffer Strip

Construct and maintain a minimum 10-foot wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or natural ponds; estuaries; and commercial fish farm ponds).

Only apply products containing bifenthrin onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: *Conservation Buffers to Reduce Pesticide Losses*. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21 pp. <http://www.in.nrcs.usda.gov/technical/agronomy/newconbuf.pdf>.

Buffer Zone for Ground Application (groundboom, overhead chemigation, or airstblast)

Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for ULV Aerial Application

Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for Non-ULV Aerial Application

Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Spray Drift Requirements

Wind Direction and Speed

Only apply this product if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph.

Temperature Inversions

Do not make aerial or ground applications into temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

Droplet Size

Use only medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

Additional Requirements for Ground Applications

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to applications.

For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

For airstblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

Instructions for Application

The following Directions for Use tables provide, in some cases, rate ranges. Use the lower application rates when insect pressure is light to moderate. Use the higher application rates when insect populations are high, when treating mites and when climate is arid.

Cultivation within 10 feet of a water body is prohibited to allow for the growth of a vegetated filter strip.

In New York State this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or permanent streams that drain into coastal marshes.

INDEX TO CROPS LISTED ON THIS LABEL

Artichokes
Beans and Peas (Dry)
Beans and Peas (Succulent)
Beets, Garden (see Root Crops)
Brassica
Caneberries
Canola, Crambe, Rapeseed
Christmas Trees (WA and OR only)
Cilantro, Coriander
Citrus
Conifer Seed Orchards (AL, AR, FL, GA, LA, MS, OK, SC, TN, TX, VA only)
Cotton
Field Corn (Grain and Silage), Popcorn, Field Corn Grown for Seed (At Planting Use)
Field Corn (Grain and Silage), Popcorn, Field Corn Grown for Seed (PRE & PPI)
Field Corn (Grain and Silage), Popcorn, Field Corn Grown for Seed (Foliar Use)
Sweet Corn, Sweet Corn Grown for Seed (At Planting Use)
Sweet Corn, Sweet Corn Grown for Seed (Foliar Use)
Cucurbits
Fruiting Vegetables
Grapes
Hops
Leafy Brassica Greens (Crop Subgroup 5-B)
Lettuce, Head
Mayhaw
Okra
Peanut
Pears
Root Crops (except Sugarbeets)
Soybean
Spinach
Tobacco
Tomatoes, Tomatillos (see under Fruiting Vegetable instructions)
Tree Nut Crops
Tuberous and Corm Vegetables (Crop Subgroup 1-C)

ARTICHOKES

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Artichoke Plume Moth Cribrate Weevil	0.10 lb. a.i. (6.4 fl. oz. product)	Begin applications when pest population reaches damaging levels and repeat as necessary to maintain control. Apply in water in a minimum of 75 gallons of spray/A by ground or in a minimum of 10 gallons/A by air. Do not make applications less than 15 days apart. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season.	5

SUCCULENT BEANS AND PEAS

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Bean (<i>Phaseolus</i> spp.): Broadbean (succulent) Lima bean (green) Runner bean Snap bean Wax bean	Flea Beetle Aster Leafhopper Leafhoppers	0.025-0.10 lb. a.i. (1.6-6.4 fl. oz. product)	Apply in a minimum of 10 gallons/A by ground or in a minimum of 2 gallons/A by air. When applying by air, substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired.	3
Bean (<i>Vigna</i> spp.): Asparagus bean Blackeyed pea Chinese longbean Cowpeas Moth bean Southern pea Yardlong bean Jackbean Soybean (immature seed) Sword bean Pea (<i>Pisum</i> spp.) Dwarf pea Edible-pod pea English pea Garden pea Green pea Snow pea Sugar snap pea Pigeon pea	Alfalfa Caterpillar Aphids Armyworms Beet Fall Southern Yellowstriped Beetles Bean Leaf Cucumber Japanese (Adult) Mexican Bean Sap Bugs Plant Bugs Stink Bugs Tarnished Plant Bugs Cloverworm Corn Earworm Corn Rootworm (Adult) Cutworms European Corn Borer Imported Cabbageworm Leafminers Loopers Pea Leaf Weevil Pea Weevil Saltmarsh Caterpillar Thrips Tobacco Budworm Webworms Western Bean Cutworm Whitefly	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	For best control thorough coverage is necessary. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.	
	Banks Grass Mite Carmine Mite Lygus spp. Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

DRIED BEANS AND PEAS

[illegible]

BRASSICA

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Head and Stem Brassica Vegetables including: Broccoli Brussels Sprouts Cabbage Cauliflower Cavalo Broccoli Chinese Broccoli (gai lon, white flowering broccoli) Chinese Cabbage (napa) Chinese Mustard Cabbage (gai choy) Kohlrabi	Aphids Armyworms Corn Earworm Crickets Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Ground Beetles Imported Cabbageworm Leafhoppers Loopers Saltmarsh Caterpillar Stink Bugs Thrips Tobacco Budworm Whitefly Wireworm (Adults)	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	Apply in water in a minimum of 10 gallons spray/A by ground or in a minimum of 2 gallons/A by air. Substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired when applying by air. For best control thorough coverage is necessary. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season. Do not make more than 5 applications after bloom. Do not make applications less than 7 days apart.	7
	Banks Grass Mite Carmine Mite Lygus spp. Pacific Spider Mite Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

CANEERRIES

Including Bingleberries, Blackberries, Dewberries, Loganberries, Lowberries, Marionberries, Olallieberries, Raspberries, Youngberries

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Leafrollers Orange Tortrix Root Weevils	0.05-0.10 lb. a.i. (3.2-6.4 fl. oz. product)	Apply in water in a minimum of 50 gallons/A by ground or in a minimum of 10 gallons/A by air. For best control thorough coverage of foliage is necessary. Make one pre-bloom application and if necessary one post-bloom application. For Crown Borer apply as a drench either post-harvest (fall) or pre-bloom (spring), using 0.10 lb. a.i./A in at least 200 gallons of water/A. Direct the spray at the crown of the plant. For best results, apply at higher water gallonages (up to 400 gallons/A) or prior to a significant rainfall. Do not apply both pre-bloom foliar and pre-bloom drench applications. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.	3
Raspberry Crown Borer Spider Mites	0.10 lb. a.i. (6.4 fl. oz. product)		

CANOLA, CRAMBE, RAPESEED

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Armyworms Cutworms Diamondback Moth Flea Beetle Flea Hopper Grasshopper Loopers Other Lepidopterous Larvae Plant Bug Seedpod Weevil Stink Bugs Thrips Whitefly	0.033-0.04 lb. a.i. (2.1-2.6 fl. oz. product)	Apply in water in a minimum of 10 gallons/A by ground or in a minimum of 2 gallons/A by air. Substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired when applying by air. For best control thorough coverage is necessary. Do not apply more than 0.08 lb. a.i. (5.12 fl. oz. of product) per acre per season. Do not make applications less than 14 days apart.	35

CHRISTMAS TREES

For use only in Washington and Oregon

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS
Root Weevil Spruce Spider Mite	0.06-0.1 lb. a.i. (3.9-6.4 fl. oz. product)	<p>Apply in water in a minimum of 20 gallons/A by ground, or in a minimum of 5 gallons/A by air.</p> <p>Do not apply more than 3 times in a crop year.</p> <p>Do not apply more than 0.10 lb. a.i. (6.4 fl. oz. of product) per acre per treatment.</p> <p>Do not apply through any type of irrigation system.</p> <p>Do not make applications less than 21 days apart.</p> <p>Although this product is not expected to be phytotoxic to Christmas trees, it is recommended that application be made to a small representative group of plants to ensure that a particular variety is not unusually sensitive.</p>

CILANTRO, CORIANDER

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Beet Armyworm Cabbage Looper Cutworms Flea Beetles Grasshoppers Leafminers Saltmarsh Caterpillar Spotted Cucumber Beetle Thrips Whitefly	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	<p>For best control, thorough coverage is necessary. Apply as needed.</p> <p>Apply in water in a minimum of 10 gallons of spray/A by ground or in a minimum of 2 gallons/A by air.</p> <p>Do not make applications less than 7 days apart.</p> <p>Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season.</p>	3
Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

CITRUS

Not for this use in California unless accompanied by supplemental labeling.

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Blue Green Citrus Root Weevil (<i>Pachnaeus opalus</i>) Brown Leaf Notcher (<i>Epicaerus mexicanus</i>) Diaprepes Root Weevil (<i>Diaprepes abbreviatus</i>) Little Leaf Notcher (<i>Artipus floridanus</i>) Southern Blue Green Citrus Root Weevil (<i>Pachnaeus Litus</i>)	0.25-0.50 lb. a.i. (16-32 fl. oz. product)	Apply by ground in a minimum of 40 gallons of dilute spray per acre. Make uniform application to bare soil beneath the tree from the trunk to the drip line of the tree. Use a higher spray volume to insure uniformity of coverage. Pre- and post-application irrigation may also aid in uniform coverage. Bifenture protects tree roots from root weevils by forming a barrier of pesticide through which they must burrow when the neonates fall from the tree after hatching. After application minimize disturbance of the soil beneath the trees to maintain this barrier. It is important to time applications correctly. Peak emergence of adult Diaprepes Weevil varies by citrus growing region and is also dramatically affected by environmental factors such as soil moisture. Typically, two peaks are observed for Diaprepes, first in spring and then in late summer or early fall. For Southern Blue Green and Blue Green Citrus Weevils and Fuller Rose Beetle, a single emergence peak in the spring is typical. Brown and Little Leaf Notchers typically have three emergence peaks in spring, summer and fall. Since emergence varies seasonally and by location, observation of adults is the most accurate way to forecast timing of applications. Numbers of adults can be estimated by trapping during spring and summer during the active early morning and later afternoon periods. Egg laying occurs for 8-10 weeks following emergence from the soil, and larval invasion of the soil begins 2-3 weeks following adult emergence. It is critical to have the Bifenture EC soil barrier in place before the neonates drop. Use Bifenture EC in conjunction with other tools in an integrated pest management program for citrus Root Weevils. Good cultural practices, biological control of larvae and foliar control of adults are all important. Local university extension personnel can provide the most current information to protect citrus trees. Additional information: Apply to individual citrus resets, when not in solid planted rows, using a hand-gun or shielded sprayer. Note that although peak emergence of Diaprepes occurs in the spring, weather conditions can cause a minor emergence of this pest in the fall. Use the highest rate if the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence in the spring. This will provide the longest residual management of Diaprepes Root Weevil. Use the lower rate if the citrus grove is in an area where weather conditions will promote more than one peak of pest emergence, and make a second application later in the season. Do not apply through irrigation systems. Do not allow Bifenture EC to contact fruit or foliage. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season. Do not apply by air.	1
Asian Cockroach (<i>Blattella asahinae</i>) Fire Ants (<i>Solenopsis</i> spp.)	0.1-0.25 lb. a.i. (6.4-16 fl. oz. product)		

CONIFER SEED ORCHARDS

For use only in the states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, and Virginia

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS
Cone Worms Seed Bugs Seed Worms	0.1-0.2 lb. a.i. (6.4-12.8 fl. oz.)	Apply in water in a minimum of 100-500 gallons/A by ground. Apply in water in a minimum of 10 gallons/A or in refined vegetable oil in a minimum of 0.5 gallons/A by air. For best control thorough coverage is necessary. Begin application 7 days following peak pollen flight and repeat at 30 day intervals to a maximum of 0.60 lb. a.i./A per season. Do not make more than six applications per season, or apply more than 0.60 lb. a.i. (38.4 fl. oz. of product) per acre per season.

COTTON

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
European Corn Borer Soybean (Banded) Thrips Tobacco Thrips	0.02-0.10 lb. a.i. (1.3-6.4 fl. oz. product)	Apply Bifenture EC in water or refined soybean/cottonseed oil. Apply in water in a minimum of 5 gallons/A by ground or a minimum of 1 gallon/A by air. Substitute 1 quart of emulsified oil for 1 quart water if desired when applying by air.	14
Boll Weevil Bollworm Cabbage Looper Cotton Aphid Cotton Fleahopper Cotton Leafperforator Cutworms Fall Armyworm Plant Bugs Saltmarsh Caterpillar Southern Garden Leafhopper Stink Bugs Tobacco Budworm Whitefly Yellowstriped Armyworm	0.04-0.10 lb. a.i. (2.6-6.4 fl. oz. product)	ULV Application: Apply in refined vegetable oil in a minimum of 1 quart/A with aircraft calibrated to give adequate coverage. Boll Weevil: Apply Bifenture EC every 3 to 4 days until control is acceptable. Mites and Aphids: Apply when pests first appear. Repeat as necessary to maintain control. Use the higher rates once a damaging threshold is established. Apply no more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season in all states except California. In California, apply no more than 0.30 lb. a.i. (19.2 fl. oz. of product) per acre per season. No more than 10 synthetic pyrethroid applications (of one product or combination of products, including Ambush®, Ammo®, Asana® XL, Baythroid®, Capture®, Danitol®, Karate®, Mustang®, and Scout X-TRA®) may be made to a cotton crop in one growing season. Do not graze livestock in treated areas or cut treated crops for feed.	
Beet Armyworm Carmine Spider Mite Lygus spp. Pink Bollworm Twospotted Spider Mite	0.06-0.10 lb. a.i. (3.8-6.4 fl. oz. product)		

FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (AT PLANTING USE)

PESTS CONTROLLED	RATE BIFENTURE EC	APPLICATION INSTRUCTIONS	PHI (days)
Corn Rootworm, Larvae Mexican Northern Southern Western	0.0046 lb. a.i. (0.30 fl. oz. product) per 1,000 linear feet of row	Apply as a 5 to 7 inch T-band at planting over the open seed furrow. Position the spray nozzle behind the planter shoe, in front of the press wheel centered over the row. The table below describes the amount of Bifenture EC needed per acre. Apply in water in a minimum of 3 gallons/A. When using Bifenture EC with fertilizers, check to be sure all components are compatible. For mixture with water or fertilizer, use the following procedure.	30
Army Cutworm Cutworm Species Grubs Seed Corn Beetle Seed Corn Maggot True Armyworm or Armyworm Species Wireworm	0.0023-0.0046 lb. a.i. (0.15-0.30 fl. oz. product) per 1,000 linear feet of row	Fill the spray tank approximately one-half full with water or liquid fertilizer; add the proper amount of Bifenture EC; then add the rest of the water or fertilizer. Sufficient agitation during mixing and application is required to ensure a uniform mixture. Only apply to soil when there is less than 30% cover of crop residue remaining. Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment. Do not apply more than 0.10 lb. a.i. (6.4 fl. oz. of product) per acre per season.	

Row spacings	40 in.	38 in.	36 in.	30 in.
Bifenture EC (lb. a.i. per acre)	0.060	0.064	0.069	0.080
Bifenture EC (formulated product, ounces per acre)	3.9	4.1	4.4	5.12

FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED

Pre-Plant Incorporated (PPI) and Pre-Emergence (PRE)

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS
Armyworm spp. Black Cutworm Seedcorn Maggot Stalkborer White Grub Wireworm	0.047-0.062 lb. a.i./A (3-4 fl. oz./A product) Pre-Plant Incorporated (PPI)	Incorporate Bifenture EC close to the expected depth of the seed, but no deeper than 3 inches. PPI: Use the 3-4 oz./A rate only. Apply alone or with PPI herbicides as a tank mix. PRE: Use the 2.56 oz./A rate when tankmixing and applying with PRE herbicides.
Armyworm spp. Black Cutworm Stalkborer	0.040 lb. a.i./A (2.56 fl. oz./A product) Pre-emergence (PRE)	

FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED

(FOLIAR USE)

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Army Cutworm Beet Armyworm Cereal Leaf Beetle Chinch Bug Common Stalk Borer Corn Earworm Corn Rootworm (Adults) Cucumber Beetle (Adults) Cutworm Species European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Greenbug Japanese Beetle (Adults) Leafhoppers Sap Beetle Southern Armyworm Southern Corn Leaf Beetle Southwestern Corn Borer Stink Bugs Tarnished Plant Bug Thrips True Armyworm or Armyworm Species Webworms Western Bean Cutworm Yellowstriped Armyworm	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	<p>Apply in water in a minimum of 10 gallons/A by ground or in a minimum of 2-5 gallons/A by air. For heavy infestations, use 5 gallons of finished spray per acre by aircraft. Substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired.</p> <p>For best control thorough coverage is necessary.</p> <p>Ear-Attacking Pests: Apply Bifenture EC just before silking.</p> <p>Southwestern Corn Borer, European Corn Borer: Apply at or shortly before egg hatch.</p> <p>Other Insect Pests: Apply when insects first appear. Repeat as needed.</p> <p>Banks Grass Mites: Apply when colonies first form before leaf damage or discoloration and prior to movement above the bottom third of the plant.</p> <p>Twospotted Spider Mite and Carmine Mite: Apply when colonies first form before leaf damage or discoloration and before wide-spread mite movement throughout the canopy. Use the higher rates if heavier insect pressure is noted and corn is under heat or drought stress. Tank mixtures with dimethoate at 0.50 lb. a.i. per acre are effective under these conditions.</p> <p>Mite Control in Texas, New Mexico, Oklahoma, and Arizona: Apply in water in a minimum of 10 gallons/A ground or in a minimum of 5 gallons/A by air.</p> <p>Repeat applications as necessary to maintain control, but do not apply more than 0.30 lb. a.i. (19.2 fl. oz. of product) per acre per season including PRE & PPI, at plant plus foliar applications.</p> <p>Do not graze livestock in treated areas or cut treated crops for feed within 30 days of the last application.</p> <p>Do not apply by ultra low volume (ULV) application on corn.</p> <p>If heavy rainfall is imminent, do not make aerial or ground applications to corn.</p>	30
Banks Grass Mite Carmine Mite Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

SWEET CORN
SWEET CORN GROWN FOR SEED
(AT PLANTING USE)

PESTS CONTROLLED	RATE BIFENTURE EC	APPLICATION INSTRUCTIONS				PHI (days)
Corn Rootworm, Larvae Mexican Northern Southern Western	0.0046 lb. a.i. (0.30 fl. oz. product) per 1,000 linear feet of row	<p>Apply at planting over the open seed furrow. Position the spray nozzle behind the planter shoe, in front of the press wheel centered over the row. The table below describes the amount of Bifenture EC needed per acre. Apply in a minimum of 3 gallons of finished spray per acre.</p> <p>When using Bifenthrin EC with fertilizers, check to be sure all components are compatible. For mixture with water or fertilizer, use the following procedure. Fill the spray tank approximately one-half full with water or liquid fertilizer; add the proper amount of Bifenture EC; then add the rest of the water or fertilizer. Sufficient agitation during mixing and application is required to ensure a uniform mixture.</p> <p>Only apply to soil where there is less than 30% cover of crop residue remaining. Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment.</p> <p>Do not apply more than 0.10 lb. a.i. (6.4 fl. oz. of product) per acre per season.</p>				30
Army Cutworm Cutworm Species Grubs Seed Corn Beetle Seed Corn Maggot True Armyworm or Armyworm Species Wireworm	0.0023-0.0046 lb. a.i. (0.15-0.30 fl. oz. product) per 1,000 linear feet of row					
Row spacings		40 in.	38 in.	36 in.	30 in.	
Bifenture EC (lb. a.i. per acre)		0.060	0.064	0.069	0.080	
Bifenture EC (formulated product, ounces per acre)		3.9	4.1	4.4	5.12	

SWEET CORN
SWEET CORN GROWN FOR SEED
(FOLIAR USE)

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Army Cutworm Aster Leafhopper Beet Armyworm Cereal Leaf Beetle Chinch Bug Common Stalk Borer Corn Earworm Corn Rootworm (Adults) Corn Silkworm Cucumber Beetle (Adults) Cutworm Species European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Greenbug Japanese Beetle (Adults) Leafhoppers Sap Beetle Southern Armyworm Southern Corn Leaf Beetle Southwestern Corn Borer Stink Bugs Tarnished Plant Bug Thrips True Armyworm or Armyworm Species Webworms Western Bean Cutworm Yellowstriped Armyworm	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	<p>Apply in water in a minimum of 10 gallons/A by ground or in a minimum of 2 gallons/A by air. For heavy infestations by aircraft, use 5 gallons of finished spray per acre. Substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired.</p> <p>For best control, thorough coverage is necessary.</p> <p>Ear-Attacking Pests: Apply Bifenture EC just before silking.</p> <p>Southwestern Corn Borer, European Corn Borer: Apply twice, with the first application at or shortly before egg hatch.</p> <p>Other Insect Pests: Apply when insects first appear. Repeat as needed.</p> <p>Mite Control: Apply when colonies first form before leaf damage or discoloration and prior to widespread movement throughout the canopy. For Banks Grass Mite, apply prior to movement above the bottom third of the plant.</p> <p>Use the higher rates if heavier insect pressure is noted and corn is under heat or drought stress.</p> <p>Repeat applications as necessary, but do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.</p> <p>Do not graze livestock in treated areas or cut treated crops for feed within 1 day of the last application.</p> <p>Do not apply by ultra low volume (ULV) on corn.</p> <p>If heavy rainfall is imminent, do not make aerial or ground applications to corn.</p>	1
Banks Grass Mite Carmin Mite Pacific Spider Mite Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

CUCURBITS

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Chayote (fruit) Chinese waxgourd (Chinese preserving melon) Citron melon Cucumber Gherkin Gourd, edible (includes hyloan, cucuzza), (<i>Luffa</i> spp.) (includes hechima, Chinese okra), (<i>Momordica</i> spp.) (includes balsam apple, balsam pear, bitter melon, Chinese cucumber)	Aphids Armyworms Cabbage Looper Corn Earworm Cucumber Beetles Cutworm Grasshopper Leafhoppers Melonworm Pickleworm Plant Bug Rindworm Squash Bugs Squash Vine Borer Stink Bugs Tobacco Budworm	0.04-0.10 lb. a.i. (2.6-6.4 fl. oz. product)	Apply in water in a minimum of 20 gallons/A by ground or in a minimum of 5 gallons/A by air. Substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired. For best control thorough coverage is necessary. Do not apply more than 0.30 lb. a.i. (19.2 fl. oz. of prod- uct) per acre per season. Do not apply more than twice after bloom. Do not make applications less than 7 days apart.	3
Muskmelon (hybrids and/or cultivars of <i>Cucumis melo</i>) (includes true cantaloupe, Cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon) Pumpkin (<i>Cucurbita</i> spp.) Squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini) Squash, winter (includes butternut squash, calabaza, hubbard squash (<i>C. mixte</i> ; <i>C. pepo</i>), includes acorn squash, spaghetti squash) Watermelon (includes hybrids and/or varieties of <i>Citrullis</i> spp.)	Banks Grass Mite Carmine Mite Lygus spp. Twospotted Spider Mite Whitefly	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

FRUITING VEGETABLES

Eggplant, bell and non-bell pepper, pepino, groundcherry, tomato, tomatillo

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Eggplant Pepper (bell and non-bell) Pepino Groundcherry	Armyworms (including: Beet Armyworm, Fall Armyworm, Southern Yellowstriped Armyworm) Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafhoppers Leafminers Loopers Pepper Weevil Plant Bug Stink Bug Thrips Tomato Pinworm Tomato Hornworm Vegetable Leafminer Whitefly	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	Apply in at least 2 gallons finished spray per acre by air or at least 10 gallons per acre by ground. When application is made by air, 1-2 quarts emulsified oil may replace 1-2 quarts of water in the finished spray. For best control thorough coverage is necessary. Do not make applications less than 7 days apart. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.	7
	Banks Grass Mite Broad Mite Carmine Mite Lygus spp. Pacific Spider Mite Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		
Tomato Tomatillo	Aphids Armyworms (including: Beet Armyworm, Fall Armyworm, Southern Yellowstriped Armyworm) Bean Leaf Beetle Cabbageworm Carmine Mite Cloverworm Corn Earworm Corn Rootworm Cucumber Beetle Cutworms Diamondback Moth European Corn Borer Flea Beetle Fleahopper Grasshopper Japanese Beetle (Adult) Leafhoppers Loopers Lygus spp. Melonworm Pea Weevil Pea Leaf Weevil Pickleworm Plant Bug Rindworm Salt Marsh Caterpillar Sap Beetle Seedpod Weevil Squash Bugs Stink Bug spp. Tobacco Budworm Tarnished Plant Bug Thrips Whitefly	0.033-0.08 lb. a.i. (2.1-5.2 fl. oz. product)	Apply in at least 3 gallons finished spray/A by air or at least 15 gallons/A by ground. For best control thorough coverage is necessary. Do not make applications less than 7 days apart. Do not make more than 4 applications per season.	1
	Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

GRAPES

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Cutworms Eastern Grape Lady Beetle (<i>Scymnus</i>) Grape Berry Moth Japanese Beetle (Adult) Leafhopper Variegated Leafhopper Western Grape Leafhopper	0.05-0.10 lb. a.i. (3.2-6.4 fl. oz. product)	Apply in a minimum of 25 gallons/A by ground or in a minimum of 10 gallons/A by air. Substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired. For best control thorough coverage is necessary. Use the higher rate when insect pressure is moderate to severe. Do not apply more than 0.10 lb. a.i. (6.4 fl. oz. of product) per acre per season.	30
Black Vine Weevil Glassywinged Sharpshooter Twospotted Spider Mite	0.10 lb. a.i. (6.4 fl. oz. product)		

HOPS

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Armyworms Cutworms Leafrollers Loopers	0.06-0.1 lb. a.i. (3.8-6.4 fl. oz. product)	Do not apply more than 0.10 lb. a.i. (6.4 fl. oz. of product) per acre per application. Do not apply more than 0.30 lb. a.i. (19.2 fl. oz. of product) per acre per season. Do not make applications less than 21 days apart. By ground: Full coverage is necessary for best results. For early season, use 100-150 gallons of spray per acre. For late season, use 200-250 gallons of spray per acre. Root Weevil: Direct the spray to the base of the plant. Spray 3 feet up the vine and the soil surface 1.5 to 2 feet around the plant. Twospotted Spider Mites, for late season control: Apply at least 6.4 fl. oz. (0.10 lb. a.i.) per application in a minimum of 10 gallons per acre by air. Do not apply by ultra low volume (ULV) application to hops.	14
Root Weevils	0.05-0.1 lb. a.i. (3.2-6.4 fl. oz. product)		
Twospotted Spider Mite	0.1 lb. a.i. (6.4 fl. oz. product)		

LEAFY BRASSICAS Crop Subgroup 5-B

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Broccoli raab Chinese cabbage (bok choy) Collards Kale Mizuna Mustard Greens Mustard Spinach Rape Greens	Aphids Armyworms Corn Earworm Crickets Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Grasshoppers Ground Beetles Imported Cabbageworm Japanese Beetles (Adults) Leafhoppers Loopers Saltmarsh Caterpillar Stink Bugs Thrips Tobacco Budworm Whitefly Wireworm (Adults)	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	Apply in water in a minimum of 10 gallons/A by ground or in a minimum of 2 gallons/A by air. For best control thorough coverage of foliage is necessary. When applied by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Do not make applications less than 7 days apart. Do not apply more than 0.40 lb. a.i. (25.6 fl. oz. of product) per acre per season.	7
	Banks Grass Mite Carminite Mite Lygus spp. Pacific Spider Mite Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

LETTUCE, HEAD

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Armyworms Cabbage Maggot Corn Earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Grasshoppers Imported Cabbageworm Leafhoppers Loopers Salt Marsh Caterpillar Stink Bug spp. Thrips Tobacco Budworm Whitefly	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	Apply in water in a minimum of 15 gallons/A by ground or in 5 gallons/A by air. For air application, substitute 1-2 quarts of emulsified oil for 1-2 quarts water if desired. For best control thorough coverage is necessary. Do not make applications less than 7 days apart. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season.	7
Carmine Mite Lygus spp. Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

MAYHAW

Not for this use in California unless accompanied by supplemental labeling.

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Plum Curculio	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)	Apply in at least 28 gallons per acre. Do not apply more than once every 7 days. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.	30

OKRA

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Armyworms Corn Earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Japanese Beetles (Adult) Leafminers Loopers Stink Bugs Thrips Whitefly	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	For best control, thorough coverage is necessary. Apply as needed. Apply in water in a minimum of 10 gallons of spray/A by ground or in a minimum of 2 gallons/A by air. Do not make applications less than 7 days apart. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.	7
Broad Mite Carmine Mite Lygus spp. Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

PEANUT

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Beet Armyworm Corn Earworm Cutworm spp. Fall Armyworm Grasshoppers Green Cloverworm Leafhoppers Lesser Cornstalk Borer Loopers Rednecked Peanut Worm Southern Armyworm Southern Corn Rootworm Stink Bugs Threecornered Alfalfa Hopper Velvetbean Caterpillar Yellowstriped Armyworm	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	Apply in at least 10 gallons of water. Do not apply more than once every 14 days. Do not feed green immature plants and peanut hay to livestock. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season.	14
Aphids Spider Mites Thrips Whitefly	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

PEARS

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Aphids Codling Moth Cutworms Green Fruitworm Leafhoppers Leafminers Leafrollers Lygus spp. Plant Bugs Plum Curculio San Jose Scale (Crawlers) Stink Bugs Tarnished Plant Bugs	0.04-0.2 lb. a.i. (2.6-12.8 fl. oz. product)	By ground: Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray. For best control thorough coverage is necessary. By air: Apply in a minimum of 10 gallons per acre. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season with no more than 0.45 lb. a.i. (28.8 fl. oz. of product) per acre applied after petal fall. Apply as necessary to maintain control and repeat applications at 30 day intervals. Do not graze livestock in treated orchards or cut treated cover crops for feed.	14
Twospotted Spider Mite Yellow Mite	0.06-0.2 lb. a.i. (3.8-12.8 fl. oz. product)		
European Red Mite	0.08-0.2 lb. a.i. (5.12-12.8 fl. oz. product)		

ROOT CROPS (except Sugarbeets)

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Edible burdock Carrot Celeriac Chervil Chicory Ginseng Horseradish Parsley Parsnip Radish Oriental radish Rutabaga Salsify Black salsify Spanish salsify Skirret Turnip	Aphids Beet Armyworm Celery Leaf Tier Corn Earworm Cross-striped Cabbageworm Cutworms Diamondback Moth European Corn Borer Fall Armyworm Fire Ants Flea Beetles Green Cloverworm Hornworms Imported Cabbageworm Loopers Southern Armyworm Spider Mites Tobacco Budworm Velvetbean Caterpillar Whitefly Yellowstriped Armyworm	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)	Apply in at least 25 gallons per acre by ground. Do not apply more than once every 7 days. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season.	21
Garden Beets	Aphids Fire Ants Flea Beetles Lepidopterous Larvae Spider Mites Whitefly	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)	Make foliar applications in a minimum of 25 gallons/A. Do not apply more than 0.40 lb. a.i. (25.6 fl. oz. of product) per acre per season. Do not apply more often than every 7 days.	1

SOYBEAN

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Alfalfa Caterpillar Aphids Aster Leafhopper Bean Leaf Beetle Beet Armyworm* Cloverworm Corn Earworm Corn Rootworm (Adult) Cucumber Beetles Cutworms European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Imported Cabbageworm Japanese Beetle (Adult) Pea Leaf Weevil Pea Weevil Plant Bug Saltmarsh Caterpillar Sap Beetle Southern Armyworm Stink Bugs Tarnished Plant Bug Thrips Tobacco Budworm* Webworms Western Bean Cutworm Whitefly Yellowstriped Armyworm Soybean Aphid	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	<p>Make foliar applications in at least 10 gallons per acre. Do not apply more than once every 30 days.</p> <p>Do not apply more than 0.30 lb. a.i. (19.2 fl. oz. of product) per acre per season.</p> <p>*Because pyrethroid resistance is common for Beet Armyworm and Tobacco Budworm, consult your local or state agricultural authorities to find out if resistant pest populations are in the treatment area. If so, refer to the resistance information in the Directions for Use section of this label.</p>	18
Lygus spp. Whitefly Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

SPINACH

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Armyworms Colorado Potato Beetle Corn Earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Pepper Weevil Thrips Tomato Hornworm Tomato Pinworm Whitefly	0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	<p>Apply in water at 10-50 gallons/A by ground or 5-50 gallons/A by air.</p> <p>Whiteflies: Make up to 4 foliar treatments of Bifenture EC by ground or air at rates of up to 0.4 pint (0.10 lb. active) per acre.</p> <p>Repeat applications at 7 day intervals.</p> <p>Fire Ants: Make up to 4 applications of Bifenture EC to the soil at planting or as a foliar treatment by ground or air at rates of up to 0.4 pint (0.10 lb. active) per acre.</p> <p>Repeat application at 7 day intervals.</p> <p>Do not make applications less than 7 days apart.</p> <p>Do not apply more than 0.40 lb. a.i. (25.6 fl. oz. of product) per acre per season.</p>	40
Banks Grass Mite Broad Mite Carmin Mite Fire Ants Lygus spp. Pacific Spider Mite Twospotted Spider Mite	0.08-0.10 lb. a.i. (5.12-6.4 fl. oz. product)		

TOBACCO

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS
Armyworm spp. Cutworm spp. Mole Crickets Stalkborers Tobacco Flea Beetle (Larvae) White Grubs Wireworms	0.0625-0.10 lb. a.i. (4.0-6.4 fl. oz. product)	Pre-transplant soil application: Apply specified rate in a minimum of 10 gallons/A. To control below-ground pests, use equipment which will incorporate the application into the top 4" of soil. At-transplant water treatment application: Apply specified rate in a water treatment volume of 10-200 gallons/A.
Aphid spp. Armyworm spp. Chinch Bugs Cucumber Beetles Cutworm spp. Flea Beetle (Adults) Grasshoppers Green Bugs Japanese Beetles Saltmarsh Caterpillar Stink Bugs Tarnished Plant Bugs Thrips Tobacco Budworm* Tobacco Hornworm Whiteflies	0.04-0.10 lb. a.i. (2.56-6.4 fl. oz. product)	Foliar application: Apply specified rate in a minimum of 10 gallons/A up to and including layby. Do not make more than 2 foliar applications per season. May be tank mixed with other herbicides registered for tobacco use. *See Resistance section on this label for more information.
Lygus spp. Spider Mites	0.1 lb. a.i. (6.4 fl. oz. product)	
Do not apply later than layby. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per season.		

TREE NUT CROPS

Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut (black and English)

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Black Pecan Aphid Codling Moth Filbert Worm Hickory Shuckworm Leaffooted Bugs Navel Orangeworm Oblique Banded Leafroller Peach Twig Borer Pecan Leaf Casebearer Pecan Nut Casebearer Pecan Phylloxera Plant Bugs Stink Bugs Walnut Aphid Yellow Pecan Aphid	0.05-0.20 lb. a.i. (3.2-12.8 fl. oz. product)	Ground Application: Apply as a dilute (minimum of 200 gallons per acre) or concentrate (minimum of 50 gallons per acre) spray in sufficient water to provide thorough coverage. Air Application: Apply in a minimum of 10 gallons of finished spray per acre. Minimum Spray Intervals: Apply Bifenture EC as needed to maintain control, but do not apply at intervals sooner than 15 days. Do not apply more than 0.20 lb. a.i. (12.8 fl. oz. of product) per acre per application. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season. Do not graze livestock in treated orchards or cut treated cover crops for feed.	Pecans: 21 Others: 7
European Red Mite Spider Mites	0.08-0.20 lb. a.i. (5.1-12.8 fl. oz. product)		
Fire Ants Walnut Husk Fly	0.1-0.2 lb. a.i. (6.4-12.8 fl. oz. product)		

TUBEROUS AND CORM VEGETABLES (Crop Subgroup 1C)

CROP	PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	APPLICATION INSTRUCTIONS	PHI (days)
Arracacha Arrowroot Artichoke (Chinese and Jerusalem) Cassava (bitter and sweet) Chayote (root) Chufa Dasheen Edible Canna Ginger Leren Potato Sweet Potato Tanier True Yam Turmeric Yam Bean	Banded Cucumber Beetle Black Flea Beetle Corn Wireworm Cucumber Beetle Japanese Beetle Grubs June Beetle Rootworms Southern Potato Wireworm Sugarcane Beetle Sweetpotato Flea Beetle Sweetpotato Weevil Tobacco Wireworm Whitefringed Beetle White Grub	At-Plant 0.30 lb. a.i. (19.2 fl. oz. product) At Cultivation or Lay-By 0.05-0.15 lb. a.i. (3.2-9.6 fl. oz. product) Foliar 0.033-0.10 lb. a.i. (2.1-6.4 fl. oz. product)	Bifenture EC may be applied at planting time for the control of wireworms, rootworms and white grubs. Apply at the rate of 0.30 lb. a.i./A as a soil incorporated broadcast, directed bed spray or T-band spray into the planting furrow. Bifenture EC may be applied as a cultivation or lay-by treatment for the control of wireworms, rootworms, and white grubs. Apply to the drill area and cover with soil utilizing cultivation equipment set to throw soil to the drill area. Apply as a banded spray over the row at a rate of 0.05 to 0.15 lb. a.i./A (3.2 to 9.5 fl. oz. of product) in 10 gallons of spray per acre. Bifenture EC may be applied as a foliar spray for the control of the adult life stages of flea beetles, click beetles (wireworms), cucumber beetles (rootworms), white fringed beetles, and May/June beetles (white grubs). Apply at a rate of 0.033 to 0.10 lb. a.i./A (2.1 to 6.4 fl. oz. of product) in 10 gallons of spray by ground or 3 gallons of spray by air. Do not make more than 2 foliar applications per season. Do not make applications less than 21 days apart. Do not apply more than 0.50 lb. a.i. (32 fl. oz. of product) per acre per season, including soil applications.	21

SOD FARMS

Not for use in California unless accompanied by supplemental labeling.

In New York State, this product may NOT be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).

In New York State, DO make a single repeat application of this product if there are signs of renewed insect activity, but not sooner than two weeks after the first application.

PESTS CONTROLLED	RATE BIFENTURE EC/ACRE	RATE BIFENTURE EC FL. OZ./1,000 SQ. FT.
Armyworms ¹ Cutworms ¹ Sod Webworm ¹	0.03-0.05 lb. a.i. (2.2-3.5 fl. oz. product)	0.05-0.08 fl. oz. product
Annual Bluegrass Weevil (<i>Hyperodes</i>) (Adult) ² Banks Grass Mite ⁶ Billbugs (Adult) ³ Black Turfgrass Ataenius (Adult) ⁴ Crickets Earwigs Fleas (Adult) Grasshoppers Mealybugs Mites ⁶	0.05-0.11 lb. a.i. (3.5-7.0 fl. oz. product)	0.08-0.16 fl. oz. product
Ants Chinch Bugs ⁵ Fleas (Larvae) ⁷ Imported Fire Ants ⁸ Japanese Beetle (Adult) Mole Cricket (Adult) ⁹ Mole Cricket (Nymph) ¹⁰ Ticks ¹¹	0.11-0.21 lb. a.i. (7.0-14.0 fl. oz. product)	0.16-0.32 fl. oz. product

¹ **Armyworms, Cutworms, and Sod Webworms:** For best control, delay watering (irrigation) or mowing for 24 hours after application. Higher application rates (up to 0.32 fl. oz. per 1,000 sq. ft.) may be required if grass is being maintained at a mowing height of greater than 1" in periods of high pest pressure.

² **Annual Bluegrass Weevil (*Hyperodes*) Adults:** Time applications to control adult weevils as they leave their overwintering sites and move into grass. Generally, this movement begins when Forsythia is in full bloom and finishes when flowering dogwood is in full bloom. Your State Cooperative Extension Services can give more specific information regarding the timing of applications.

³ **Billbug Adults:** Apply when adult billbugs are first seen during April and May. Consult degree day models to optimize application timing, and consult your State Cooperative Extension Service for information specific to your region. In temperate regions, apply in spring to also provide control of over-wintered chinch bugs.

⁴ **Black Turfgrass Ataenius Adults:** Apply during May and July to control the first and second generations, respectively. Time the May application to coincide with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhouttei*) and horse chestnut (*Aesculus hippocastanum*). Time the July application to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).

⁵ **Chinch Bugs:** Irrigate the grass area before treatment to optimize penetration of the product to the base of grass plants and the thatch layer, where chinch bugs are found. If the thatch layer is excessive or if a relatively long mowing height is being maintained, use higher volume applications. Chinch Bugs are difficult to control in grasses and the higher labeled application rates may be necessary to control populations containing both nymphs and adults during the middle of the summer.

⁶ **Mites:** For best control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application timed five to seven days after the first may be necessary for acceptable control.

⁷ **Flea Larvae:** These pests develop in the soil of shaded areas accessible to pets and other animals. When treating these areas, use a higher application volume to ensure the insecticide penetrates into the soil. Note: if the lawn area is being treated with this product at 0.10 fl. oz./1,000 sq. ft. for adult flea control, then the larval application rate may be achieved by increasing the application volume two- to four-fold.

⁸ **Imported Fire Ants:** For best control, combine broadcast applications (to control foraging workers and newly mated fly-in queens) with mound drenches (to control existing colonies). If the soil is not moist, irrigate before application or use a high volume application. For broadcast treatments, use 0.32 fl. oz./1,000 sq. ft. Treat mounds by diluting 0.05 fl. oz. Bifenture EC per gallon of water, and apply 1 to 2 gallons of finished spray per mound. Treat the mounds with enough force to break the apex and allow the solution to flow into the ant tunnels. Also treat a four-foot diameter circle around the mound. For best results, apply in cool weather (65 - 80°F) or in early morning or late evening hours.

⁹ **Mole Cricket Adults:** Adult mole crickets are difficult to control because preferred grass areas are continuously invaded during the early spring. Apply as late in the day as possible, and water in with up to 0.5 inches of water immediately following treatment. If the soil is not moist, irrigate before application to bring the crickets closer to the soil surface and maximize exposure to the insecticide. In grass areas that receive pressure from adult mole crickets, treat at peak egg hatch to ensure control of subsequent nymph populations (see footnote 10).

¹⁰ **Mole Cricket Nymphs:** In grass areas that receive intense pressure from adult mole crickets, treat immediately before peak egg hatch. Best control is achieved at that time because young nymphs are more susceptible to insecticides and they are located near the soil surface. To control larger, more damaging nymphs later in the year a higher application rate and more frequent applications may be necessary. Apply as late in the day as possible and water in with up to 0.5 inches of water immediately following treatment. If the soil is not moist, irrigate before application to bring the crickets closer to the soil surface and maximize exposure to the insecticide.

¹¹ **Ticks (including ticks that may transmit Lyme Disease and Rocky Mountain Spotted Fever):** Do not make spot applications, but treat the entire area where exposure to ticks may occur. When treating areas with dense ground cover or heavy leaf litter, use higher spray volumes. Note that ticks may be reintroduced from surrounding areas or on host animals and retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Limit repeat application to no more than once per seven days, and only if there are signs of renewed activity. **Deer Ticks (*Ixodes* sp.):** This pest has a complex life-cycle that ranges over a two-year period and involves four life stages. Apply in the late fall and/or early spring to control adult ticks (usually located on brush or grass above the soil surface), and in mid to late spring to control larvae and nymphs (found in the soil and leaf litter). **American Dog Ticks:** These ticks congregate along paths or roadways where humans are likely to be encountered. Apply as necessary from mid-spring to early fall to control larvae, nymphs, and adults.

**IMPORTANT INFORMATION
READ BEFORE USING PRODUCT**

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

To the extent consistent with applicable law, United Phosphorus, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or United Phosphorus, Inc., and Buyer and User assume the risk of any such use. To the extent consistent with applicable law, UNITED PHOSPHORUS, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, United Phosphorus, Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED PHOSPHORUS, INC. AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UNITED PHOSPHORUS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

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RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

GROUP 3 INSECTICIDE

BifentureTM 10DF

Insecticide/Miticide

ACTIVE INGREDIENT:

Bifenthrin* (2 methyl[1,1'-biphenyl]-3-yl) methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate 10.0%

OTHER INGREDIENTS: 90.0%

TOTAL 100.0%

*Cis isomers 97% minimum, trans isomers 3% maximum

KEEP OUT OF REACH OF CHILDREN CAUTION PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

FIRST AID

If Swallowed:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
If in Eyes:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
If on Skin or Clothing:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency medical treatment information, contact the Rocky Mountain Poison Control Center at 1-866-673-6671.

Note to Physician: This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

For chemical emergency: spill, leak, fire, exposure, or accident, call CHEMTREC at 1-800-424-9300.

EPA Reg. No. 70506-227

Net Contents: 2.5 lbs.



United Phosphorus, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406
1-800-438-6071 • www.upi-usa.com

PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes or clothing. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment:

Applicators and other handlers (other than mixers and loaders) must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and Loaders must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is extremely toxic to fish and aquatic invertebrates. Use with care when applying in areas adjacent to any body of water. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not make applications when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin. Prior to use in a particular county contact the local extension service for procedures and precautions to use to protect endangered species.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product through any type of irrigation system.

Resistance. Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state agricultural authorities or universities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect pest may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: coveralls; waterproof gloves; and shoes plus socks.

GENERAL INSTRUCTIONS

Unless otherwise directed by registered supplemental labeling, follow the Directions for Use in each crop group section.

Bifenture 10DF Insecticide/Miticide must be diluted with water before spray application. Do not use nozzle screens (e.g. strainers) greater than 50 mesh size.

Fill the spray tank 1/2 full with water. Add required amount of Bifenture 10DF. Start agitation in the tank. Air agitation is not recommended. Mix thoroughly to fully disperse and suspend the wettable powder. Fill the spray tank with the required amount of water. Maintain agitation during storage in nurse or supply tank and during application.

Mix as needed; do not store diluted material.

Rotational Crops

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days following the final application of bifenthrin.

Tank-Mixture

Bifenture 10DF Insecticide/Miticide may be applied in tank mixtures with other products approved for use on registered crops. Observe all restrictions and precautions which appear on the labels of these products. Test for compatibility of products before mixing using a standard jar test or other similar method.

Buffer Zones

Vegetative Buffer Strip

Construct and maintain a minimum 10-foot wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or natural ponds; estuaries; and commercial fish farm ponds).

Only apply products containing bifenthrin onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: *Conservation Buffers to Reduce Pesticide Losses*. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21 pp. <http://www.in.csusda/v/technical/agronom/newconbuf.pdf>.

Buffer Zone for Ground Application (groundboom, overhead chemigation, or airstream)

Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for ULV Aerial Application

Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for Non-ULV Aerial Application

Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Spray Drift Requirements

Wind Direction and Speed

Only apply this product if the wind direction favors on-target deposition.

Do not apply when the wind velocity exceeds 15 mph.

Temperature Inversions

Do not make aerial or ground applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

Droplet Size

Use only medium or coarse spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

Use the largest droplet size consistent with good pest control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.

Additional Requirements for Ground Applications

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to applications.

For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

Application Instructions

Rate of application is variable according to pest pressure, timing of sprays, and field scouting. Use lower rates under light to moderate infestation; higher rates under heavy insect pressure and for mite control. Arid climates generally require higher rates.

In New York State this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or streams that drain into coastal marshes.

Artichoke

Pest	Rate oz/A (lb ai/A)	Instructions
Artichoke Plume Moth Cribrate Weevil	16.0 (0.10)	Apply when pest populations reach damaging thresholds and repeat as necessary to maintain control, but not more often than 15-day intervals. Do not apply more than 16 oz product (0.10 lb ai/A) between bud formation and harvest of an individual fruit. Ground Application: Apply in a minimum of 75 gallons per acre. Air Application: Apply in a minimum of 10 gallons per acre. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Preharvest interval: 5 days.

Brassicas

Broccoli, Chinese Broccoli, (gailon, white flowering broccoli), Brussels Sprouts, Cauliflower, Cavalo broccoli, Kohlrabi, Cabbage, Chinese Cabbage (napa), Chinese Mustard Cabbage (gai choy)

Pest	Rate oz/A (lb ai/A)	Instructions
Grubs Maggots Wireworms	8.0 to 16.0 (0.05 to 0.10)	Planting Time Use: For Wireworms, Maggots or Grubs, apply in-furrow with the seed or transplant.
Aphids Armyworms Crickets Corn Earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Ground Beetles Imported Cabbageworm Leafhoppers Loopers Tobacco Budworm Saltmarsh Caterpillar Stink Bugs Thrips Wireworm (Adults)	5.3 to 16.0 (0.033 to 0.10)	Foliar Use: Apply in a minimum of 5 gallons per acre by air or in a minimum of 20 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 32 oz product (0.2 lb ai) per acre per season, including at-plant applications. Do not make application less than 7 days apart. Do not make more than 5 applications after bloom. Preharvest interval: 7 days.
Banks Grass Mite Carmine Mite <i>Lygus</i> spp. Pacific Spider Mite Twospotted Spider Mite Whiteflies	12.8 to 16.0 (0.08 to 0.10)	

Bushberries

Blueberry (highbush and lowbush), Currant, Elderberry, Gooseberry, Huckleberry

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Blueberry Maggot Fruitworms Leafhoppers Lecanium Scale (Crawlers) Obliquebanded Leafroller Plum Curculio Redbanded Leafroller Spanworm Variegated Leafroller	5.3 to 16.0 (0.033 to 0.10)	Apply in at least 2 gallons per acre by air or in at least 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Do not make applications less than 7 days apart. Preharvest interval: 1 day.
Banks Grass Mite Carmine Mite <i>Lygus</i> spp. Pacific Spider Mite Twospotted Spider Mite	12.8 to 16.0 (0.08 to 0.10)	

Caneberries

Including: Blackberries, Bingleberries, Dewberries, Lowberries, Marionberries, Olallieberries, Youngberries, Loganberries, Raspberries

Pest	Rate oz/A (lb ai/A)	Instructions
Black Vine Weevil Leafrollers Orange Tortrix Root Weevils	8.0 to 16.0 (0.05 to 0.10)	Apply by air or ground equipment using sufficient water to obtain full coverage of the canopy. Use a minimum of 10 gallons per acre by air and 50 gallons per acre by ground.
Carmine Mite Raspberry Crown Borer Twospotted Spider Mite	16.0 (0.10)	One application may be made pre-bloom and a second application may be made post bloom. For Crown Borer: Apply 16 oz product (0.10 lb ai) per acre, post-harvest (fall) or pre-bloom (spring), as a drench application directed at the crown of plants in a minimum of 200 gallons water/acre. Greater efficacy is observed at higher water gallonages (up to 400 gallons/A) or in an application prior to a significant rainfall event. Do not make both pre-bloom foliar and pre-bloom drench applications. Do not apply more than 32 oz product (0.2 lb ai) per acre per season. Preharvest interval: 3 days.

Canola, Crambe, Rapeseed

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Armyworms Cutworms Diamondback Moth Flea Beetle Flea Hopper Grasshopper Loopers Other Lepidopterous Larvae Plant Bug Stink Bugs Seedpod Weevil Thrips	5.3 to 6.4 (0.033 to 0.04)	Apply in a minimum of 2 gallons per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 12.8 oz product (0.08 lb ai) per acre per season. Do not make applications less than 14 days apart. Preharvest interval: 35 days.

Citrus

Pest	Rate oz/A (lb ai/A)	Instructions
Blue-Green Citrus Root Weevil Brown Leaf Notcher Diaprepes Root Weevil Fuller Rose Beetle Green Citrus Root Weevil Little Leaf Notcher Southern Blue-Green Citrus Weevil	40.0 to 80.0 (0.25 to 0.50)	Apply Bifenture 10DF by ground equipment to bare soil beneath citrus trees. Bifenture 10DF must be uniformly applied from the trunk to the drip line of tree; apply in a minimum of 40 gallons of dilute spray per acre. Greater spray volume will insure greater uniformity of coverage. A pre- and post-application irrigation may aid in the uniformity of coverage as well. Bifenture 10DF protects citrus tree roots from Diaprepes and other citrus root weevils feeding by forming a barrier which provides contact activity on newly hatched larvae (neonates). As eggs hatch in new foliage, neonates fall to the soil surface BELOW the tree and come in contact with Bifenture 10DF as they attempt to burrow into the root zone. Minimize disturbance of the soil beneath trees. Timing of Bifenture 10DF applications is critical. Current information suggests that peak emergence of adult
Asian Cockroach Fire Ants	16.0 to 40.0 (0.10 to 0.25)	

Citrus

Pest	Rate oz/A (lb ai/A)	Instructions (<i>continued</i>)
Blue-Green Citrus Root Weevil Brown Leaf Notcher Diaprepes Root Weevil Fuller Rose Beetle Green Citrus Root Weevil Little Leaf Notcher Southern Blue-Green Citrus Weevil	40.0 to 80.0 (0.25 to 0.50)	Diaprepes Weevil varies by citrus growing region and these emergence peaks can be dramatically affected by environmental factors, such as soil moisture. Typically, two peaks are observed for Diaprepes, first in spring then late summer or early fall. Southern Blue-Green and Blue-Green Citrus Weevils and Fuller Rose Beetle typically exhibit a single emergence peak in the spring. Brown and Little Leaf Notchers typically exhibit three emergence peaks, spring, summer and fall. Since emergence varies seasonally and by location, timing of Bifenture 10DF application can be accurately forecast by observing adults. Adults are most active early morning and late afternoon; numbers can be estimated by trapping throughout spring and summer (emergence periods). Egg laying will occur for 8 to 10 weeks following adult emergence from the soil; larval invasion of the soil will begin 2-3 weeks following adult emergence. It is critical to have the Bifenture 10DF soil barrier in place prior to drop of the neonates. Bifenture 10DF is one of several effective tools in an integrated pest management program for Citrus Root Weevils. Apply in conjunction with good cultural practices, biological control of larvae and foliar control of adults. Consult local university extension personnel for current information to protect citrus trees from Citrus Root Weevils and other pests.
Asian Cockroach Fire Ants	16.0 to 40.0 (0.10 to 0.25)	<p>Additional Instructions: Apply to individual citrus resets, when not in solid planted rows, using hand-gun or shielded sprayer. Peak emergence of Diaprepes Root Weevil generally occurs in the spring. Depending on weather conditions, a minor emergence of Diaprepes Root Weevil may also occur in the fall. If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring, use 80 oz product (0.50 lb ai) to obtain the longest residual management of Diaprepes Root Weevil. If the citrus grove to be treated is in an area where weather conditions will promote more than one peak of pest emergence, 40 oz product (0.25 lb ai) can be applied early season and 0.25 pound active can be applied later in the season. Do not apply through irrigation systems. Do not allow any application of Bifenture 10DF to contact fruit or foliage. Do not apply more than a total of 80 oz product (0.5 lb ai) per acre per year. Preharvest interval: 1 day. Apply in a minimum of 40 gallons of finished spray per acre. Ground application only. Do not apply by air.</p>

Cotton

Pest	Rate oz/A (lb ai/A)	Instructions
European Corn Borer Soybean (Banded) Thrips Tobacco Thrips	3.2 to 16.0 (0.02 to 0.10)	This product may be applied in water. Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallons per acre by air.
Boll Weevil Bollworm Cabbage Looper Cotton Aphid Cotton Fleahopper Cotton Leafperforator Cutworms Fall Armyworm Plant Bugs Saltmarsh Caterpillar Southern Garden Leafhopper Stink Bugs Tobacco Budworm	6.4 to 16.0 (0.04 to 0.10)	To control Boll Weevil: Apply at an interval of 3 to 4 days until pest numbers are reduced to acceptable levels. To control Mites and Aphids: Apply when pests first appear. Repeat as necessary to maintain control. Higher rates will be required once a damaging threshold is established. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Preharvest interval: 14 days. Do not graze livestock in treated areas or cut treated crops for feed. Do not make more than 10 synthetic pyrethroid applications (of one product or combination of products) to a cotton crop in one growing season.
Beet Armyworm Carmine Spider Mite <i>Lygus</i> spp. Pink Bollworm Twospotted Spider Mite Whiteflies	9.6 to 16.0 (0.06 to 0.10)	

Cucurbits

Chayote (fruit); Chinese waxgourd (Chinese preserving melon); Citron melon; Cucumber; Gherkin; Gourd, edible (includes hyotan, cucuzza); (*Luffa* spp.) (includes hechima, Chinese okra); (*Momordica* spp.) (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); Muskmelon (hybrids and/or cultivars of *Cucumis melo*) (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon); Pumpkin (*Cucurbita* spp.); Squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); Squash, winter (includes butternut squash, calabaza, hubbard squash (*C. mixta*; *C. pepo*) includes acorn squash, spaghetti squash); Watermelon (includes hybrids and/or varieties of *Citrullus* spp.)

Pest	Rate oz/A (lb ai/A)	Instructions
Wireworms Maggots Grubs	8.0 to 16.0 (0.05 to 0.10)	Planting Time Use: For Wireworms, Maggots or Grubs, apply in-furrow with the seed or transplant.
Aphids Armyworms Cabbage Looper Corn Earworm Cucumber Beetles Cutworms Grasshopper Leafhoppers Plant Bug Pickleworm Melonworm Rindworm Squash Bugs Squash Vine Borer Stink Bugs Tobacco Budworm	8.0 to 16.0 (0.05 to 0.10)	Foliar Use: Apply in a minimum of 5 gallons per acre by air or in a minimum of 20 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 48 oz product (0.3 lb ai) per acre per season. Do not make more than two applications after bloom. Do not make applications less than 7 days apart. Preharvest interval: 3 days.
Banks Grass Mite Carmine Mite <i>Lygus</i> spp. Twospotted Spider Mite Whiteflies	12.8 to 16.0 (0.08 to 0.10)	

Fruiting Vegetables

Eggplant, Pepper (Bell & Non-Bell), Groundcherry, Pepino

Pest	Rate oz/A (lb ai/A)	Instructions
Armyworms Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafminers Loopers Pepper Weevil Plant Bug Stink Bug Thrips Tomato Pinworm Tomato Hornworm Vegetable Leafminer Whiteflies	5.3 (0.033)	Apply in a minimum of 2 gallons per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control. Do not make applications less than 7 days apart. Do not apply more than 32 oz product (0.2 lb ai) per acre per season. Preharvest interval: 7 days.
Banks Grass Mite Broad Mite Carmine Mite <i>Lygus</i> spp. Pacific Spider Mite Twospotted Spider Mite	12.8 (0.08)	

Fruiting Vegetables

Tomato, Tomatillo

Pest	Rate oz/A (lb ai/A)	Instructions
Grubs Maggots Wireworms	8.0 to 12.8 (0.05 to 0.08)	Apply in-furrow with the seed or transplant.
Aphids Armyworms Including: Beet Armyworm, Fall Armyworm, Southern Yellowstriped Armyworm Bean Leaf Beetle Cabbageworm Carmine Mite Cloverworm Corn Earworm Corn Rootworm Cucumber Beetles Cutworms Diamondback Moth European Corn Borer Flea Beetles Flea Hopper Grasshopper Japanese Beetle (Adults) Leafhoppers Loopers <i>Lygus</i> spp. Melonworm Pea Weevil Pea Leaf Weevil Pickleworm Plant Bug Rindworm Saltmarsh Caterpillar	5.3 to 12.8 (0.033 to 0.08)	Apply as necessary for insect control using a minimum of 15 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not make applications less than 10 days apart. A maximum of 4 applications may be applied per season. Preharvest interval: 1 day.

Fruiting Vegetables (continued)

Tomato, Tomatillo

Pest (continued)	Rate oz/A (lb ai/A)	Instructions
Sap Beetle Seedpod Weevil Squash Bugs Stink Bug spp. Tobacco Budworm Tarnished Plant Bug Thrips Tomato Hornworms Twospotted Spider Mite Whiteflies	5.3 to 12.8 (0.033 to 0.08)	Apply as necessary for insect control using a minimum of 15 gallons per acre with ground equipment or 5 gallons per acre by air. Thorough coverage is essential to achieve control. Do not make applications less than 10 days apart. A maximum of 4 applications may be applied per season. Preharvest interval: 1 day.

Grapes

Pest	Rate oz/A (lb ai/A)	Instructions
Cutworms Eastern Grape Leafhopper Grape Berry Moth Japanese Beetles (Adults) Variegated Leafhopper Western Grape Leafhopper	8.0 to 16.0 (0.05 to 0.10)	Apply in a minimum of 10 gallons by air or in a minimum of 25 gallons with ground equipment. Thorough coverage is essential to achieve control. When pest pressure is moderate to severe, use higher rate. Do not apply more than 16 oz product (0.10 lb ai) per acre per season. Preharvest interval: 30 days.
Black Vine Weevil Glassywinged Sharpshooter Twospotted Spider Mite	16.0 (0.10)	

Hops

Not for this use in California

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Armyworms Cutworms Leafrollers Loopers	9.6 to 16.0 (0.06 to 0.10)	Do not apply more than 16 oz product (0.10 lb ai) per acre per application. Do not apply more than 48 oz product (0.3 lb ai) per acre per season. A spray interval of 21 days between applications must be maintained. Preharvest interval: 14 days.
Root Weevils	8.0 to 16.0 (0.05 to 0.10)	
Twospotted Spider Mite	16.0 (0.10)	Ground Application: For best results, full coverage is essential. For early season applications use 100-150 gallons per acre. For late season applications use 200-250 gallons per acre. For Root Weevil control, make a directed spray to the base of the plant. Spray up the bine 3 feet and the soil surface 1.5 to 2 feet on either side of the plant. Air Application (for late season control of Twospotted Spider Mites): Apply a minimum of 16 oz product (0.10 lb ai) per application in a minimum of 10 gallons per acre.

(continued)

Leafy Petiole Vegetables

Celery, Cardoon, Chinese celery, Celtuce, Florence fennel, Rhubarb, Swiss chard

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Armyworms Crickets Corn Earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Ground Beetles Imported Cabbageworm Leafhoppers Loopers Saltmarsh Caterpillar Stink Bugs Thrips Tobacco Budworm Whiteflies Wireworm (Adults)	5.3 to 16.0 (0.033 to 0.10)	Apply in at least 2 gallons per acre by air or at least 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Do not make applications less than 7 days apart. Preharvest interval: 7 days.
Banks Grass Mite Carmine Mite <i>Lygus</i> spp. Pacific Spider Mite Twospotted Spider Mite	12.8 to 16.0 (0.08 to 0.10)	

Peanut

Pest	Rate oz/A (lb ai/A)	Instructions
Beet Armyworm Corn Earworm Cutworm spp. Fall Armyworm Grasshoppers Green Cloverworm Leafhoppers Lesser Cornstalk Borer Loopers Redneck Peanut Worm Southern Armyworm Southern Corn Rootworm Stink Bugs Threecornered Alfalfa Hopper Velvetbean Caterpillar Yellowstriped Armyworm	5.3 to 16.0 (0.033 to 0.10)	Make foliar applications in at least 10 gallons per acre at the rate of 16.0 oz product (0.10 lb ai) per acre at a minimum of 14 day intervals. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Preharvest interval: 14 days.
Aphids Spider Mites Thrips Whiteflies	5.12 to 16.0 (0.08 to 0.10)	

Lettuce, Head

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Armyworms Corn Earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Imported Cabbageworm Leafhoppers Loopers Saltmarsh Caterpillar Stink Bug spp. Tobacco Budworm	5.3 to 16.0 (0.033 to 0.10)	Apply as necessary for insect control using a minimum of 20 gallons per acre with ground equipment and 5 gallons per acre by air. Thorough coverage is essential to achieve control. Do not make applications less than 7 days apart. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Preharvest interval: 7 days.
Carmine Mite <i>Lygus</i> spp. Twospotted Spider Mite Whiteflies	12.8 to 16.0 (0.08 to 0.10)	

Pears

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Codling Moth Cutworms Green Fruitworm Leafhoppers Leafminers Leafrollers <i>Lygus</i> spp. Plant Bugs Plum Curculio San Jose Scale (Crawlers) Stink Bugs Tarnished Plant Bugs	6.4 to 32.0 (0.04 to 0.2)	Ground Application: Apply as a dilute (minimum of 200 gallons per acre) or concentrate (minimum of 50 gallons per acre) spray in sufficient water to provide thorough coverage. Air Application: Apply in a minimum of 10 gallons per acre by air. Do not apply more than 80 oz product (0.5 pound ai) per acre per season with no more than 0.45 pound ai per acre applied after petal fall. Apply as needed to maintain control using a minimum of 30-day spray interval. Preharvest interval: 14 days.
Yellow Spider Mite	9.6 to 32.0 (0.06 to 0.2)	Do not graze livestock in treated orchards or cut treated cover crops for feed.
European Red Mite Twospotted Spider Mite	12.8 to 32.0 (0.08 to 0.2)	

Mayhaw

Pest	Rate oz/A (lb ai/A)	Instructions
Plum Curculio	12.8 to 16.0 (0.08 to 0.10)	Make foliar applications in at least 28 gallons per acre. Do not apply more than once every 7 days. Do not apply more than 32 oz product (0.2 lb ai) per acre per season. Preharvest interval: 30 days.

Root Crops (except sugarbeets)

Crops	Pest	Rate oz/A (lb ai/A)	Instructions
Burdock, edible Carrot Celeriac Chervil, turnip rooted Chicory Ginseng Horseradish Parsley, turnip rooted Parsnip Radish Radish, oriental Rutabaga Salsify Salsify, black Salsify, Spanish Skirret Turnip	Aphids Beet Armyworm Celery Leafminer Corn Earworm Cross-striped Cabbageworm Cutworms Diamondback Moth European Corn Borer Fall Armyworm Fire Ants Green Cloverworm Hornworms Imported Cabbageworm Loopers Southern Armyworm Tobacco Budworm Velvetbean Caterpillar Yellowstriped Armyworm Spider Mites Whiteflies	12.8 to 16.0 (0.08 to 0.10)	Make foliar applications in at least 25 gallons per acre. Apply no more than once every 7 days. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Preharvest interval: 21 days.
Garden Beet	Aphids Fire Ants Flea Beetles Lepidopterous Larvae Spider Mites Whiteflies	12.8 to 16.0 (0.08 to 0.10)	Make foliar applications in at least 25 gallons per acre. Apply no more than once every 7 days. Do not apply more than 64 oz product (0.4 lb ai) per acre per season. Preharvest interval: 1 day.

Soybean

Pest	Rate oz/A (lb ai/A)	Instructions
Soybean Aphid	5.3 to 16.0 (0.033 to 0.10)	Make foliar applications in at least 10 gallons per acre at the rate of 16 oz product (0.10 lb ai) per acre at a minimum of 30 day intervals. Do not apply more than 48 oz product (0.3 lb ai) per acre per season. Preharvest interval: 18 days.
Spider Mites	12.8 to 16.0 (0.08 to 0.10)	

Spinach

Pest	Rate oz/A (lb ai/A)	Instructions
Armyworms Colorado Potato Beetle Corn Earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Pepper Weevil Thrips Tomato Pinworm Tomato Hornworm	5.3 to 16.0 (0.033 to 0.10)	For control of Fire Ants apply Bifenture 10DF to the soil (at planting) or as a foliar treatment by ground or air at rates of up to 16 oz product (0.10 lb ai) per acre at minimum 7-day intervals up to a maximum of 4 applications. Preharvest interval: 40 days. Apply in 5-50 gallons per acre by air or 10-50 gallons finished spray per acre by ground. Do not make applications less than 7 days apart. Do not apply more than 64 oz product (0.4 lb ai) per acre per season.
Broad Mite Banks Grass Mite Carmine Mite Fire Ants <i>Lygus</i> spp. Pacific Spider Mite Twospotted Spider Mite Whiteflies	12.8 to 16.0 (0.08 to 0.10)	For control of Whiteflies apply foliar treatments of Bifenture 10DF by ground or air at rates up to 16 oz product (0.10 lb ai) per acre at minimum 7-day intervals up to a maximum of 4 applications.

Strawberries

Pest	Rate oz/A (lb ai/A)	Instructions
Aphids Armyworms Flea beetles <i>Heliothis</i> spp. Leafrollers <i>Lygus</i> spp. Plant Bugs Spittlebugs Stink Bugs Strawberry Clipper Strawberry Sap Beetle	6.4 to 32.0 (0.04 to 0.2)	Apply when pest populations reach damaging thresholds. Repeat as necessary at 7-14 day intervals. Do not apply more than 80 oz product (0.5 lb ai) per acre per season. Preharvest interval: 0 days. Ground Application: Apply in a minimum of 50 gallons per acre. Air Application (prohibited in Florida): Apply in a minimum of 5 gallons per acre.
Black Vine Weevil Strawberry Root Weevil	8.0 to 32.0 (0.05 to 0.2)	
Spider Mites	16.0 to 32.0 (0.10 to 0.2)	

CALIFORNIA SPECIFIC REQUIREMENTS FOR STRAWBERRY HARVESTERS:

Harvesters and other personnel performing tasks with all-day foliage contact in treated fields within five (5) days of application must wear a long-sleeved shirt, long pants, and shoes plus socks.

Following treatment of strawberry fields at rates of Bifenture 10DF greater than 0.10 lb ai/acre, harvesters must wear gloves for five (5) days following application.

Succulent Peas and Beans

Pea (*Pisum* spp.): Dwarf pea, Edible-pod pea, English pea, Garden pea, Green pea, Snow pea, Sugar snap pea; Pigeon pea; Bean (*Phaseolus* spp.): Broadbean (succulent), Lima bean (green), Runner bean, Snap bean, Wax bean; Bean (*Vigna* spp.): Asparagus bean, Blackeyed pea, Chinese longbean, Cowpea, Moth bean, Southern pea, Yardlong bean; Jackbean; Soybean (immature seed); Sword bean

Pest	Rate oz/A (lb ai/A)	Instructions
Grubs Maggots Wireworms	8.0 to 16.0 (0.05 to 0.10)	Planting Time Use: For Wireworms, Maggots or Grubs, apply in-furrow with the seed or transplant.
Aster Leafhopper Flea Beetle Grasshoppers Leafhoppers	4.0 to 16.0 (0.025 to 0.10)	Foliar Use: Apply in a minimum of 2 gallons per acre by air or in a minimum of 10 gallons per acre with ground equipment.
Adult Sap Beetle Alfalfa Caterpillar Aphids Bean Leaf Beetle Beet Armyworm Cloverworm Corn Earworm Corn Rootworm (Adults) Cucumber Beetles Cutworms European Corn Borer Fall Armyworm Japanese Beetle Loopers Pea Leaf Weevil Pea Weevil Plant Bug Southern Armyworm Stink Bugs Tarnished Plant Bug Thrips Yellowstriped Armyworm Webworms Western Bean Cutworm	5.3 to 16.0 (0.033 to 0.10)	Thorough coverage is essential to achieve control. Do not apply more than 32 oz product (0.2 lb ai) per acre per season including at plant applications. Preharvest interval: 3 days.
Banks Grass Mite Carmine Mite <i>Lygus</i> spp. Twospotted Spider Mite Whiteflies	12.8 to 16.0 (0.08 to 0.10)	

Tree Nut Crops

Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut (black and English)

Pest	Rate oz/A (lb ai/A)	Instructions
Black Pecan Aphid Codling Moth Filbert Worm Hickory Shuckworm Leaffooted Bugs Navel Orangeworm Obliquebanded Leafroller Peach Twig Borer Pecan Leaf Casebearer Pecan Nut Casebearer Pecan Phylloxera Plant Bugs Stink Bugs Walnut Aphid Yellow Pecan Aphid	8.0 to 32.0 (0.05 to 0.20)	Ground Application: Apply as a dilute (minimum of 200 gallons per acre) or concentrate (minimum of 50 gallons per acre) spray in sufficient water to provide thorough coverage. Air Application: Apply in a minimum of 10 gallons of finished spray per acre. Minimum Spray Intervals: Apply Bifenture 10DF as needed to maintain control, but do not apply at intervals sooner than 15 days. Observe a 21 day PHI for pecans and a 7-day PHI for all other registered tree nut crops. Do not apply more than 32 oz product (0.2 lb ai) per acre per application; do not apply more than 80 oz product (0.50 lb ai) per acre per season. Do not graze livestock in treated orchards or cut treated cover crops for feed.
European Red Mite Pecan Weevil Spider Mites	12.8 to 32.0 (0.08 to 0.20)	
Fire Ants Walnut Husk Fly	16.0 to 32.0 (0.10 to 0.2)	

STORAGE AND DISPOSAL

Pesticide Storage: Keep out of reach of children and animals. Store in original containers only. Store in a cool dry place and avoid excess heat. Do not store at temperatures below 32°F (0°C). Rough handling may cause breakage, especially at low temperatures. Allow to warm above 50°F (10°C) before use. Do not put concentrate or diluted material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Container Disposal:

Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Dealers Must Sell in Original Packages Only.

IMPORTANT INFORMATION READ BEFORE USING PRODUCT

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UNITED PHOSPHORUS, INC. AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.

To the extent consistent with applicable law, United Phosphorus, Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED PHOSPHORUS, INC. AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UNITED PHOSPHORUS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

United Phosphorus, Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of United Phosphorus, Inc.

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United Phosphorus, Inc.

Sherry B. Hutcheson
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406
Phone: (229) 247-9041

May 23, 2014

Areta Wowk
c/o Hollie Ezze
NJDEP
Bureau of Licensing & Pesticide Operations
401 East State Street, 4th Floor
Trenton, NJ 08625

RE: Section 18 Letter of Support for Bifenture EC and Bifenture 10DF Insecticides

United Phosphorus, Inc. (UPI) fully supports the Section 18 emergency exemption for use of Bifenture EC and Bifenture 10DF Insecticides, containing the active ingredient bifenthrin for control of Brown Marmorated Stink Bug (*Halyomorpha halys*) on apples, peaches and nectarines in Maryland (and other supporting States). The products we supply are:

- Bifenture EC – EPA Reg. No. 70506-57
- Bifenture 10DF – EPA Reg. No. 70506-227

UPI will be able to supply product to meet the market demand for 2014.

If you have any questions, please feel free to contact me directly at 229-247-9041 or sherry.hutcheson@uniphos.com. If you have technical questions about the product and control of BMSB, please contact Tony Estes at 864-202-7526 or tony.estes@uniphos.com.

Thank you for your time and consideration.

Best regards,

A handwritten signature in cursive script, appearing to read 'Sherry B. Hutcheson', written in dark ink.

Sherry B. Hutcheson
Regulatory Affairs Manager

Cc Tony Estes

RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators or persons under their direct supervision, and only for those uses covered by the certified applicator's certificate



Section 18 EXEMPTION

FOR DISTRIBUTION AND USE
ONLY IN NEW JERSEY

EPA FILE SYMBOL:

Section18-2014-NJ-11 (apples),
Section18-2014-NJ-12 (peaches),
Section18-2014-NJ-13 (nectarines)

EMERGENCY CALLS: 800-331-3148

ALL APPLICABLE DIRECTIONS, RESTRICTIONS, AND PRECAUTIONS ON THE REGISTERED
PRODUCT LABEL FOR BRIGADE WSB (EPA REG. NO. 279-3108) ARE TO BE FOLLOWED

THESE DIRECTIONS FOR USE MUST BE IN THE POSSESSION OF THE USER AT THE TIME OF
PESTICIDE APPLICATION.

This exemption is effective from June 17, 2014 through October 15, 2014

Crop	Pest Controlled	Rate of Application
Apples, Peaches, Nectarines	Brown Marmorated Stinkbug	12.8 - 32 oz/A (0.08 - 0.2 lb ai/acre)

Directions for Use: Application must be made post-bloom, by ground only as a dilute (minimum 200 gallons of finished spray per acre) or concentrate (minimum 50 gallons of finished spray per acre) in sufficient water to provide thorough coverage. Do not apply this product until after petal fall.

Restrictions: Do not apply more than 32 oz/acre (0.2 lb ai/acre) per application. Do not apply more than 72 oz/A (0.5 lb ai/acre) per year. Do not make applications less than 30 days apart. Do not graze livestock in treated areas. Do not apply within 14 days of harvest. Do not allow entry into treated areas for 12 hours following application.

Any adverse effects resulting from the use of Brigade WSB under this emergency exemption must be immediately reported to the New Jersey Department of Environmental Protection.



FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia, PA 19103

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Draft Label

Not For

Distribution

EPA File Symbol 04-WA-XX
FMC Corporation
Agriculture Products Group
1735 Market Street
Philadelphia, PA 19103

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Spartan and a-FMC Trademarks
©2004 FMC Corporation

RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

Brigade[®] WSB

Insecticide/Miticide

EPA Reg. No. 279-3108

EPA Est. 279-NY-1

Active Ingredient:	By Wt.
Bifenthrin	10.0%
Other Ingredients:	90.0%
	100.0%

*Cis isomers 97% minimum, trans isomers 3% maximum

KEEP OUT OF REACH OF CHILDREN WARNING AVISO

This label must be in the possession of the user at the time of application.

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

FIRST AID

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information.

Note to Physician:

This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

For Emergency Assistance Call (800) 331-3148.

FMC

FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia PA 19103

Net Contents: 0.5 Pound WSB

PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

May be fatal if swallowed. Harmful if inhaled or absorbed through skin. Causes moderate eye irritation. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing.

Personal Protective Equipment:

Applicators and other handlers (other than mixers and loaders) must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and Loaders must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. Use with care when applying in areas adjacent to any body of water. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not make applications when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin. Prior to use in a particular county contact the local extension service for procedures and precautions to use to protect endangered species.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product through any type of irrigation system.

Resistance: Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state agricultural authorities or universities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: Coveralls; Waterproof gloves; and Shoes plus socks.

See supplemental label for directions for use in California.

STORAGE AND DISPOSAL

Pesticide Storage

Keep out of reach of children and animals. Store in original containers only. Store in a cool dry place and avoid excess heat. Do not store at temperatures below 32°F (0°C). Rough handling may cause breakage, especially at low temperatures. Allow to warm above 50°F (10°C) before use. Do not allow inner bags to become wet during storage. Do not handle inner bag with wet hands or wet gloves. Do not put concentrate or diluted material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: (800) 331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Container Disposal

Non-refillable container: Do not reuse or refill this container. When all water soluble bags are used, the outer package should be clean and may be disposed of in a sanitary landfill, by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke. If outer container contacts formulated product in any way, it must be triple rinsed with clean water. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and close tightly. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

GENERAL INSTRUCTIONS

Unless otherwise directed by registered supplemental labeling, follow the Directions for Use in each crop group section.

The product in this outer package is a wettable powder formulation of the insecticide bifenthrin packaged in a translucent water soluble bag. Do not allow the inner bag to become wet before adding it to the spray or nurse tank. Do not handle the inner bag with wet hands or wet gloves. Rough handling may cause breakage. Do not store at temperatures below 32°F (0°C). Allow to warm above 50°F (10°C) before use. Cooler water temperatures increase the time needed for the inner bag to dissolve completely.

Brigade WSB Insecticide needs to be diluted with water prior to spray application. Do not use nozzle screens (eg. strainers) greater than 50 mesh size. Determine the number of water soluble bag(s) to make up necessary spray suspension.

Calculate the number of bags needed for the recommended rate and number of acres to be treated by using the following equation:

$$\frac{\text{Recommended Rate for Pest (Active/Acre)} \times \text{\# Acres to be Treated with Tankload}}{0.05 \text{ (amt. ai in each bag)}} = \text{\# of Brigade Water Soluble Bags to use for acres to be treated.}$$

Do not break bags. When the equation equals less than a whole number of bags, use the next higher whole number of bags.

Fill the spray tank 1/2 full with water. Open the outer wrapper of this product and immediately dump required contents into the spray tank. Allow the water soluble bag(s) to dissolve completely. Start agitation in the tank. Air agitation is not recommended. Mix thoroughly to fully disperse and suspend the wettable powder. Fill the spray tank with the required amount of water. Maintain agitation during storage in nurse or supply tank and during application.

Mix as needed; do not store diluted material.

Rotational Crops

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days following the final application of bifenthrin.

Tank-Mixture

Brigade WSB Insecticide/Miticide may be applied in tank mixtures with other products approved for use on registered crops. Observe all restrictions and precautions which appear on the labels of these products. Test for compatibility of products before mixing using a standard jar test or other similar method.

BUFFER ZONES

Vegetative Buffer Zones

Construct and maintain a minimum 10-foot-wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or natural ponds; estuaries; and commercial fish farm ponds).

Only apply products containing bifenthrin onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21pp. <http://www.in.ces.usda/v/technical/agronom/newconbuf.pdf>.

Buffer Zone for Ground Application (groundboom, overhead chemigation, or airstblast) – Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).

Buffer Zone for ULV Aerial Application – Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).

Buffer Zone for Non-ULV Aerial Application – Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).

Spray Drift Requirements

Wind Direction and Speed

Only apply this product if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph.

Temperature Inversion

Do not make aerial or ground applications into temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

Droplet Size

Use only Medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10

feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

Application Instructions

Rate of application is variable according to pest pressure, timing of sprays, and field scouting. Use lower rates under light to moderate infestation; higher rates under heavy insect pressure and for mite control. Arid climates generally require higher rates.

In New York State this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or streams that drain into coastal marshes.

Do not cultivate within 10' of the aquatic area so as to allow growth of a vegetative filter strip.

Artichoke

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Artichoke	Cribate Weevil Artichoke Plume Moth	16.0 (0.10)	Apply when pest population reaches damaging threshold and repeat as necessary to maintain control, but not more often than 15-day intervals. Do not exceed 2 bags (0.10 lb ai/A) between bud formation and harvest of an individual fruit. Application by ground: Apply a full cover spray in a minimum of 75 gallons of finished spray per acre. Application by air: Apply specified dosage in a minimum of 10 gallons per acre. Do not exceed 10 bags (0.5 lb ai) per acre per season. Do not apply within 5 days of harvest *1 bag = 0.05 lb ai

Hops*

Crop	Pest	Dosage** oz/A (lb ai/A)	Directions
Hops	Aphids Armyworms Cutworms Leafrollers Loopers	9.6 to 16.0 (0.06 to 0.1)	Do not exceed 2 bags (0.1 lb ai) per acre per application. Do not exceed 6 bags (0.3 lb ai) per acre per season. A spray interval of 21 days between applications must be maintained. Do not apply within 14 days of harvest
	Root Weevils	8.0 to 16.0 (0.05 to 0.1)	
	Twospotted spider mite	16.0 (0.10)	Application by ground: For best results, full coverage is essential. Early season recommend 100-150 gallons of spray per acre. Late season recommend 200-250 gallons of spray per acre. For Root Weevil control, make a directed spray to the base of the plant. Spray up the vine 3 feet and the soil surface 1.5 to 2 feet on either side of the plant. Application by air for late season control of twospotted spider mites: Apply no less than 16 oz. (0.1 lb ai) per application in a minimum of 10 gallons per acre. **1 bag = 0.05 lb ai = 8 oz formulated product.

* Not for use in California

Strawberries

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Strawberries	Aphids Armyworms Flea beetles Heliothis spp. Leafrollers Lygus spp. Plant Bugs Spittlebugs Stink Bugs Strawberry Clipper Strawberry Sap Beetle	6.4 to 32.0 (0.04 to 0.2)	Apply when pest populations reach damaging thresholds and repeat as necessary at 7-14 day intervals. Do not apply more than 0.5 lb ai (80 oz formulated) per acre per season. No pre-harvest interval is required. Application by ground: Apply a full cover spray in a minimum of 50 gallons of finished spray per acre.
	Strawberry Root Weevil Black Vine Weevil	8.0 to 32.0 (0.05 to 0.2)	Application by air (Aerial application is prohibited in Florida): Apply specified dosage in a minimum of 5 gallons per acre.
	Spider mites	16 to 32.0 (0.1 to 0.2)	*1 bag = 0.05 lb ai = 8 oz formulated product

CALIFORNIA SPECIFIC REQUIREMENTS FOR STRAWBERRY HARVESTERS:

Harvesters and other personnel performing tasks with all-day foliage contact in treated fields within five (5) days of application must wear a long-sleeved shirt, long pants, and shoes plus socks.

Following treatment of strawberry fields at rates of Brigade® WSB greater than 0.1 lb ai/acre, harvesters must wear gloves for five (5) days following application.

Caneberries

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Caneberries Including: Blackberries Bingleberries Dewberries Lowberries Marionberries Ollalieberries Youngberries Loganberries Raspberries	Leafrollers Orange Tortrix Root Weevils Black Vine Weevils	8.0 to 16.0 (0.05 - 0.1)	Apply by air or ground equipment using sufficient water to obtain full coverage of foliage. (minimum of 10 gallons per acre by air and 50 gallons per acre by ground). One application may be made pre-bloom and a second application may be made post bloom. For Crown Borer, apply 0.1 lb ai / a, post-harvest (fall) or pre-bloom (spring), as a drench application directed at the crown of plants in a minimum of 200 gallons water / acre. Greater efficacy is observed at higher water gallonages (up to 400 gallons/a) or in an application prior to a significant rainfall event. Do not make both pre-bloom foliar and pre-bloom drench applications. Do not exceed 0.2 lb ai (32 oz formulated) per acre per season. Do not apply within 3 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product
	Twospotted Spider Mite Carmin Mite Raspberry Crown Borer	16.0 (0.1)	

Pears

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Pears	Aphids Codling Moth Cutworms Green Fruitworm Leafhoppers Leafminers Leafrollers Lygus spp. Plant Bugs Plum Curculio San Jose Scale (Crawlers) Stink Bugs Tarnished Plant Bugs	6.4 to 32.0 (0.04 to 0.2)	Application by ground: Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray in sufficient water to provide thorough coverage. Application by air: Apply the specified dosage in a minimum of 10 gallons per acre by air. Do not apply more than 0.5 pound active (80 oz formulated) per acre per season with no more than 0.45 pound active per acre applied after petal fall. Apply as necessary to maintain control using a minimum of 30-day spray interval. Do not apply within 14 days of harvest. Do not graze livestock in treated orchards or cut treated cover crops for feed. *1 bag = 0.05 lb ai = 8 oz formulated product
	Yellow Spider Mite	9.6 to 32.0 (0.06 to 0.2)	
	European Red Mite Twospotted Spider Mite	12.8 to 32.0 (0.08 to 0.2)	

Tree Nut Crops

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Almond Beech nut Brazil nut Butternut Cashew Chestnut Chinquapin Filbert (hazelnut) Hickory nut Hickory Macadamia nut (bush nut), Pecan Pistachio Walnut (black and English)	Black Pecan Aphid Codling Moth Filbert Worm Hickory Shuckworm Leaffooted Bugs Navel Orangeworm Oblique banded Leafroller Peach Twig Borer Pecan Leaf Casebearer Pecan Nut Casebearer Pecan Phylloxera Plant Bugs Stink Bugs Walnut Aphid Yellow Pecan Aphid	8.0 to 32.0 (0.05 to 0.20)	Application by ground: Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray in sufficient water to provide thorough coverage. Application by air: Apply the specified dosage in a minimum of 10 gallons of finished spray per acre. Minimum Spray Intervals: Apply Brigade WSB as needed to maintain control, but do not apply at intervals sooner than 15 days. Observe a 21 day Pre Harvest Interval (phi) for Pecans and a 7-day pre-harvest Interval (phi) for all other registered tree nut crops.
	European Red Mite Pecan Weevil Spider Mites	12.8 to 32.0 (0.08 to 0.20)	Do not exceed 0.2 lb ai per acre per application; do not exceed 0.50 lb ai (80 oz formulated) per acre per season.
	Fire Ants Walnut Husk Fly	16.0 to 32.0 (0.1 to 0.2)	Do not graze livestock in treated orchards or cut treated cover crops for feed. *1 bag = 0.05 lb ai = 8 oz formulated product
	Peach Twig Borer Navel Orange Worm	Dormant Spray 8.0 to 16.0 (0.05 to 0.10)	Apply Brigade WSB at 16-32 oz/a (1.0-2.0 lb ai/a) during dormancy using an EPA or CDPR registered dormant oil. Consult the manufacturer's dormant oil label for recommendations. Use full to one-half recommended dormant oil rates with Brigade. Ground application is recommended for greatest efficacy. Complete coverage is critical for control of dormant pests.
	San Jose Scale Walnut Scale	Dormant Spray 16.0 to 32.0 (0.1 to 0.2)	

Citrus

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Citrus	Diaprepes Root Weevil Southern Blue Green Citrus Root Weevil Blue Green Citrus Root Weevil Brown Leaf Notcher Little Leaf Notcher	40.0 to 80.0 (0.25 to 0.50)	Apply Brigade WSB by ground equipment to bare soil beneath citrus trees. Brigade WSB must be uniformly applied from the trunk to the drip line of trees; apply in a minimum of 40 gallons of dilute spray per acre. Greater spray volume should insure greater uniformity of coverage. A pre- and post-application irrigation may aid in the uniformity of coverage as well. Brigade WSB protects citrus tree roots from Diaprepes and other citrus root weevil feeding by forming a barrier which provides contact activity on newly hatched larvae (neonates). As citrus root weevil eggs hatch in new foliage, neonates fall to the soil surface beneath the tree and come in contact with Brigade WSB as they attempt to burrow into the root zone. Disturbance of the soil beneath trees should be minimized. Timing of Brigade WSB applications is critical. Current information suggests that peak emergence of adult Diaprepes Weevil varies by citrus growing region and these emergence peaks can be dramatically affected by environmental factors, such as soil moisture. Typically, two peaks are observed for Diaprepes, first in spring then late summer or early fall. Southern Blue-Green and Blue-Green Citrus Weevils and Fuller Rose Beetle typically exhibit a single emergence peak in the spring. Brown and Little Leaf Notchers typically exhibit three emergence peaks, spring, summer and fall. Since emergence varies seasonally and by location, timing of Brigade WSB application can be accurately forecast by observing adults. Adults are most active early morning and late afternoon; numbers can be estimated by trapping throughout spring and summer (emergence periods). Egg laying will occur for 8 to 10 weeks following adult emergence from the soil; larval invasion of the soil will begin 2-3 weeks following adult emergence. It is critical to have the Brigade WSB soil barrier in place prior to drop of the neonates.
	Fireant Asian Cockroach	16.0 to 40.0 (0.1 to 0.25)	Brigade WSB is one of several effective tools in an integrated pest management program for Citrus Root Weevils. Application of Brigade WSB should be used in conjunction with good cultural practices, biological control of larvae and foliar control of adults. Consult local university extension personnel for current information to protect citrus trees from Citrus Root Weevils and other pests. Additional Instructions: Apply to individual citrus resets, when not in solid planted rows, using handgun or shielded sprayer. Peak emergence of Diaprepes root weevil generally occurs in the spring. Depending on weather conditions, a minor emergence of Diaprepes root weevil may also occur in the fall. If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring, 0.50 pound active (80 oz formulated) should be used to obtain the longest residual management of Diaprepes root weevil. If the citrus grove to be treated is in an area where weather conditions will promote more than one peak of pest emergence, 0.25 pound active (40 oz formulated) can be applied early season and 0.25 pound active can be applied later in the season. Do not apply through irrigation systems. Do not allow any application of Brigade WSB to contact fruit or foliage. Do not apply more than a total of 0.5 lb. a.i. (80 oz formulated) per acre per year. Do not apply within 1 day of harvest. Apply the specified dosage in a minimum of 40 gallons of finished spray per acre. Ground application only. Do not apply by air. * 1 bag = 0.05 lb ai = 8 oz formulated product

SUCCULENT PEAS and BEANS

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Pea (<i>Pisum</i> spp.): Dwarf pea, Edible-pod pea, English pea, Garden pea, Green pea, Snow pea, Sugar snap pea Pigeon pea Bean (<i>Phaseolus</i> spp.): Broadbean (succulent) Lima bean (green) Runner bean, Snap bean, Wax bean Bean (<i>Vigna</i> spp.): Asparagus bean, Blackeyed pea Chinese long-bean, Cowpea, Moth bean, Southern pea Yardlong bean Jackbean Soybean (immature seed) Sword bean	Wireworm Maggot Grubs	8.0 to 16.0 (0.05 - 0.10)	Planting Time Use: For Wireworm, maggot or grubs, apply in-furrow with the seed or transplant.
	Flea Beetle Grasshoppers Aster Leafhopper Leafhoppers	4.0 to 16.0 (0.025 - 0.10)	Foliar Use: Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 0.2 lb. active ingredient (32.0 oz formulated) per acre per season including at plant applications. Do not apply within 3 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product
	Aphids Beet Armyworm Fall Armyworm Southern Armyworm Yellowstriped Armyworm Bean Leaf Beetle Cucumber Beetles Japanese beetle Adult Sap Beetle Plant Bug Stink Bugs Tarnished Plant Bug Alfalfa Caterpillar Cloverworm European Corn Borer Cutworms Western Bean Cutworm Corn Earworm Loopers Corn Rootworm Adult Thrips Webworms Pea Weevil Pea Leaf Weevil Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp Whitefly	5.3 to 16.0 (0.033 - 0.10)	
		12.8 to 16.0 (0.08 - 0.10)	

BRASSICAS

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Head and Stem Brassica Vegetables including: Broccoli Chinese Broccoli (gailon, white flowering broccoli) Brussels Sprouts Cauliflower Cavalo broccolo Kohlrabi Cabbage Chinese Cabbage (napa) Chinese Mustard Cabbage (gai choy)	Wireworm Maggot Grubs	8.0 to 16.0 (0.05 - 0.10)	Planting Time Use: For Wireworm, maggot or grubs, apply in-furrow with the seed or transplant.
	Cutworms Corn Earworm Tobacco Budworm Saltmarsh Caterpillar Leafhoppers Flea Beetles Imported Cabbageworm Cucumber Beetles Aphids Armyworms Loopers Stink Bugs Crickets Ground Beetles Thrips Wireworm (adults) Diamondback Moth	5.3 to 16.0 (0.033 - 0.10)	Foliar Use: Apply in a minimum of 5 gallons of finished spray per acre by air or in a minimum of 20 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 0.5 lb. active ingredient (80.0 oz formulated) per acre per season. Do not make more than 5 applications after bloom. Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp. Whitefly	12.8 to 16.0 (0.08 - 0.10)	

CANOLA, CRAMBE, RAPESEED

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Canola Crambe Rapeseed	Aphids Cutworms Diamondback Moth Loopers Other Lepidopterous Larvae Flea Beetle Flea Hopper Grasshopper Plant Bug Stink Bugs Seedpod Weevil Thrips Armyworms	5.3 to 6.4 (0.033 - 0.04)	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 0.08 lb active ingredient (12.8 oz formulated) per acre per season. Do not make applications less than 14 days apart. Do not apply within 35 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product

CUCURBITS

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Chayote (fruit) Chinese waxgourd (Chinese preserving melon) Citron melon Cucumber Gherkin Gourd, edible (includes hyotan, cucuzza) (Luffa spp.) (includes hechimia, Chinese okra) (Momordica spp.) (includes balsam apple, balsam pear, bitter melon, Chinese cucumber) Muskmelon (hybrids and/or cultivars of Cucumis melo) (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon) Pumpkin (Cucurbita spp.) Squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini) Squash, winter (includes butternut squash, calabaza, hubbard squash (C. mixta; C. pepo) includes acorn squash, spaghetti squash) Watermelon (includes hybrids and/or varieties of Citrullus spp.)	Wireworm Maggot Grubs	8.0 to 16.0 (0.05 - 0.10)	Planting Time Use: For Wireworm, maggot or grubs, apply in-furrow with the seed or transplant.
	Aphids Cutworms Cabbage Looper Leafhoppers Cucumber Beetles Squash Bugs Melonworm Pickleworm Plant Bug Stink Bugs Rindworm Squash Vine Borer Armyworms Corn Earworm Tobacco Budworm Grasshopper	8.0 to 16.0 (0.05 - 0.10)	Foliar Use: Apply in a minimum of 5 gallons of finished spray per acre by air or in a minimum of 20 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 0.3 lb. active ingredient (48.0 oz formulated) per acre per season. Do not make more than two applications after bloom. Do not make applications less than 7 days apart.
	Whitefly Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp.	12.8 to 16.0 (0.08 - 0.10)	Do not apply within 3 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product

LETTUCE, HEAD

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Lettuce, Head	Aphids Armyworms Corn earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Imported Cabbageworm Leafhoppers Loopers Salt Marsh Caterpillar Stink bug Spp. Tobacco Budworm	5.3 to 16.0 (0.033 - 0.10)	Apply in water as necessary for insect control using a minimum of 20 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air. Thorough coverage is essential to achieve control. Do not make applications less than 7 days apart. A maximum of 0.5 lb. active ingredient (80 oz formulated) may be applied per acre per season. Do not apply within 7 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product
	Lygus Spp. Carmin Mite Two Spotted Spider Mite Whitefly	12.8 to 16.0 (0.08 - 0.10)	

SPINACH

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Spinach	Colorado Potato Beetle Tomato Pinworm Tomato Hornworm Armyworms Corn earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Pepper Weevil Thrips	5.3 to 16.0 (0.033 to 0.10)	For control of fire ants apply Brigade WSB to the soil (at planting) or as a foliar treatment by ground or air at rates of up to 0.1 lb active (16 oz. formulated) per acre at minimum 7-day intervals up to a maximum of 4 applications. Do not apply within 40 days of harvest. Apply the specified dosage in 5-50 gallons of finished spray per acre by air or 10-50 gallons finished spray per acre by ground. Do not make applications less than 7 days apart.
	Broad Mite Banks Grass Mite Twospotted Spider Mite Carmin Mite Pacific Spider Mite Lygus Spp. Fire Ants Whitefly	12.8 to 16.0 (0.08 to 0.10)	Do not apply more than 0.4 pounds active ingredient per acre per season. For control of whiteflies apply foliar treatments of Brigade WSB by ground or air at rates up to 0.1 lb active (16 oz. formulated) per acre at minimum 7-day intervals up to a maximum of 4 applications. *1 bag = 0.05 lb ai = 8 oz formulated product

GRAPES

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Grapes	Cutworms Eastern grape leafhopper Grape berry moth Japanese beetles adults Variegated leafhopper Western grape leafhopper	8.0 to 16.0 (0.05 - 0.10)	Apply in a minimum of 10 gallons of finished spray by air or in a minimum of 25 gallons of finished spray with ground equipment. Thorough coverage is essential to achieve control. When pest pressure is moderate to severe, use higher rate.
	Black vine weevil Glasswinged sharpshooter Twospotted spider mite	16.0 (0.10)	Do not apply more than 0.10 lb ai per acre per season. Do not apply within 30 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product

FRUITING VEGETABLES

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Eggplant Pepper (Bell & Non-Bell) Groundcherry Pepino	Armyworms Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafminers Loopers Pepper weevil Plant Bug Stink Bug Thrips Tomato Pinworm Tomato Hornworm Vegetable Leafminer Whitefly	5.3 to 12.8 (0.033 to 0.08)	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control. Do not make applications less than 7 days apart. Do not apply more than 0.2 lb active ingredient (32.0 ounces formulated) per acre per season. Do not apply within 7 days of harvest
	Banks Grass Mite Twospotted Spider Mite Pacific Spider Mite Lygus Spp. Broad Mite Carmin Mite Two Spotted Spider Mite	12.8 (0.08)	
Tomato Tomatillo	Wireworms Maggots Grubs	8.0 to 12.8 (0.05 to 0.08)	For Wireworm, maggot or grubs, apply in-furrow with the seed or transplant.
	Aphids Armyworms Including: Beet Armyworm, Fall Armyworm, Southern Yellowstriped Armyworm Bean Leaf Beetle Cabbageworm Carmin Mite Cloverworm Corn earworm Corn Rootworm Cucumber Beetles Cutworms Diamondback Moth European Corn Borer Flea Beetles Flea Hopper Grasshopper Japanese Beetle (Adult) Leafhoppers Loopers Lygus Spp. Melonworm Pea Weevil Pea Leaf Weevil Pickleworm Plant Bug Rindworm Salt Marsh Caterpillar Sap Beetle Seedpod Weevil Squash Bugs Stink bug Spp. Tobacco Budworm Tarnished Plant Bug Thrips Two Spotted Spider Mite Whitefly	5.3 to 12.8 (0.033 to 0.08)	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment, or 5 gallons per acre by air. Thorough coverage is essential to achieve control. Do not make applications less than 10 days apart. A maximum of 4 applications may be applied per season. Do not apply within 1 day of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product

BUSHBERRIES

Crop	Pest	Dosage* oz/A (lb ai/A)	REMARKS
Blueberry, high-bush and low-bush Currant Elderberry Gooseberry Huckleberry	Blueberry maggot, Fruitworms, Lecanium scale (crawlers) Plum curculio Obliquebanded leaf roller Red banded leafroller Variegated leafroller Spanworm Leafhoppers Aphids	5.3 – 16.0 (0.033 - 0.10)	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 0.5 lb. active ingredient per acre per season. Do not make applications less than 7 days apart. Do not apply within 1 day of harvest.
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp.	12.8 - 16.0 (0.08 - 0.10)	*1 bag = 0.05 lb ai = 8 oz formulated product

LEAFY PETIOLE VEGETABLES

Crop	Pest	Dosage* oz/A (lb ai/A)	REMARKS
Celery Cardoon Chinese celery Celtuce Florence fennel Rhubarb Swiss chard	Cutworms Corn Earworm Tobacco Budworm Saltmarsh Caterpillar Leafhoppers Flea Beetles Imported Cabbageworm Cucumber Beetles Aphids Whitefly Armyworms Loopers Stink Bugs Crickets Ground Beetles Thrips Wireworm (adults) Diamondback Moth	5.3-16.0 (0.033 - 0.10)	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Do not apply more than 0.5 lb. active ingredient per acre per season. Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. *1 bag = 0.05 lb ai = 8 oz formulated product
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp.	12.8 – 16.0 (0.08 - 0.10)	

MAYHAW

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Mayhaw	Plum Curculio	12.8-16.0 (0.08-0.10)	Apply foliar treatments in at least 28 gallons per acre. Apply no more than once every 7 days. Do not apply more than 0.2 lb ai per acre per season. Do not apply within 30 days of harvest *1 bag = 0.05 lb ai = 8 oz formulated product

ROOT CROPS (Except Sugar Beets)

Crop	Pest	Dosage* oz/A (lb ai/A)	Directions
Burdock, edible Carrot Celeriac Chervil, turnip rooted Chicory Ginseng Horseradish Parsley, turnip rooted Parsnip Radish Radish, oriental Rutabaga Salsify Salsify, black Salsify, Spanish Skirret Turnip	Spider mites Fire Ants Flea Beetles Whitefly Aphids Beet armyworm Celery leaf tier Corn earworm Cross-striped cabbageworm Cutworms Diamondback moth European corn borer Fall armyworm Green cloverworm Hornworms Imported cabbage-worm Loopers Southern army-worm Tobacco budworm Velvetbean caterpillar Yellowstriped army-worm	12.8-16.0 (0.08-0.10)	Apply foliar treatments in at least 25 gallons per acre. Apply no more than once every 7 days. Do not apply more than 0.5 lb ai per acre per season. Do not apply within 21 days of harvest
Garden Beet	Spider mites Fire Ants Lepidopterous larvae Flea Beetles Whitefly Aphids	12.8-16.0 (0.08-0.10)	Apply foliar treatments in at least 25 gallons per acre. Apply no more than once every 7 days. Do not apply more than 0.4 lb ai per acre per season. Do not apply within 1 day of harvest *1 bag = 0.05 lb ai = 8 oz formulated product

GRASS FORAGE, FODDER, and HAY GROUP and GRASS GROWN for SEED, PASTURE and RANGE-LAND

including: bahiagrass, barnyardgrass, bentgrass, Bermudagrass, Kentucky bluegrass, big bluestem, smooth bromegrass, buffalograss, reed canarygrass, centipedegrass, crabgrass, cupgrass, dallisgrass, sand dropseed, Kentucky fescue, meadow foxtail, eastern gamagrass, side-oats grama, guinea grass, Indian grass, Johnsongrass, lovegrass, napiergrass, oatgrass, orchardgrass, pangolagrass, paspalum, redtop, Italian ryegrass, St. Augustine grass, sprangletop, squirreltailgrass, stargrass, switchgrass, timothy, crested wheatgrass, wildrye grass and zoysia grass. Also included are sudangrass and sorghum forages and their hybrids.

NOTE: Use on grasses is limited to the States of Idaho, Oregon, and Washington.

Insects Controlled	Rate of Application	Method of Application
Alfalfa Caterpillar Alfalfa Looper Alfalfa Weevil Blue Alfalfa Aphid ¹ Cutworms Egyptian Alfalfa Weevil (larvae & adult) Flea Beetles Green Cloverworm Green Peach Aphid ¹ Hornworms Meadow Spittlebug Pea Aphid ¹ Potato Leafhopper Spotted Alfalfa Aphid ¹ Threecornered Alfalfa Hopper Velvetbean Caterpillar Webworms	5.3 to 16.0 oz/A (0.033 to 0.1 lb ai/A)	Apply as insects appear in sufficient volume of water to ensure thorough coverage of foliage. Use higher recommended dosage for increased pest pressure or for increased residual pest control. Do not exceed maximum allowable rate. Apply in a minimum of 2 gallons of finished spray per acre by aerial equipment or 10 gallons per acre by ground equipment. Higher volumes of finished spray may improve insect control under high temperatures, when foliage is dense and/or when insect pressure is high.
Armyworm, southern Armyworm, true Armyworm, yellowstriped Ant spp. Cereal Leaf Beetle Chinch Bug Cricket Grass Mealybug Grasshoppers Range Caterpillar Stink Bugs Armyworm, fall Black Grass Bug	8.0 to 16.0 oz/A (0.05 to 0.1 lb ai/A)	
Armyworm, southern Armyworm, true Armyworm, yellowstriped Ant spp. Cereal Leaf Beetle Chinch Bug Cricket Grass Mealybug Grasshoppers Range Caterpillar Stink Bugs Armyworm, fall Black Grass Bug	16.0 oz/A (0.1 lb ai/A)	

Do not apply more than 0.2 lbs active ingredient per acre per season.

Do not make applications less than 14 days apart.

Applications may be made up to 30 days prior to harvest for forage and hay.

¹Aphid control may be variable depending on species present and host-plant relationships.

Dealers Should Sell in Original Packages Only.

Conditions of Sale and Limitation of Warranty and Liability:

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT.** Any warranties, express or implied, having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.

To the extent consistent with applicable law, FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

This Conditions of Sale and Limitation of Warranty and Liability may not be amended by any oral or written agreement.

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279-3108

9/27/2012

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

September 27, 2012

Tim Formella
FMC Corporation
1735 Market Street
Philadelphia, PA 19103

Subject: Amendment – Adding Grass Grown for Seed
Brigade WSB Insecticide/Miticide
EPA Reg. No. 279-3108
Your submission dated November 9, 2009

Dear Mr. Formella:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable subject to the comments listed below. Two (2) copies of the finished labeling must be submitted prior to releasing the product for shipment. A stamped copy of the label is enclosed for your records.

1. Add an use restriction limiting use to Idaho, Oregon, and Washington states for grass grown for seed to the Directions for Use section.

Note, incorporate the supplemental labeling into the Master label at the next printing of the final printed label or within 18 months from the date of this letter, whichever comes first.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

If you have any questions regarding this action, please contact BeWanda Alexander at Alexander.bewanda@epa.gov or (703) 305-7460.

Sincerely,

BeWanda Alexander

Richard Gebken

Product Manager

Insecticide Branch

Registration Division (7505P)

2 8 4

Supplemental Labeling

RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for the uses covered by the certified applicator's certification.

Brigade[®] WSB
Insecticide/Miticide

EPA Reg. No. 279-3108

EPA Est.

Active Ingredient:

By Wt.

Bifenthrin: (2 methyl[1,1'-biphenyl]-3-yl)	
methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-	
2,2-dimethyl-cyclopropanecarboxylate*	10.0%
Other Ingredients:	90.0%
	100.0%

*Cis isomers 97% minimum, trans isomers 3% maximum

KEEP OUT OF REACH OF CHILDREN WARNING

ALL APPLICABLE DIRECTIONS, RESTRICTIONS AND PRECAUTIONS ON THE EPA REGISTERED LABEL ARE TO BE FOLLOWED.

This labeling must be in the possession of the user at the time of pesticide application.

Read the label affixed to the container for Brigade WSB Insecticide/Miticide before applying. Carefully follow all precautionary statements and application use directions.

Use of Brigade WSB according to this supplemental labeling is subject to all use precautions and limitations imposed by the labeling affixed to the container for Brigade WSB Insecticide/Miticide

FMC

FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia, PA 19103

BrigadeWSB_Supp_07-08-2009

STORAGE AND DISPOSAL

Pesticide Storage

Keep out of reach of children and animals. Store in original containers only. Store in a cool dry place and avoid excess heat. Do not store at temperatures below 32°F (0°C). Rough handling may cause breakage, especially at low temperatures. Allow to warm above 50°F (10°C) before use. Do not allow inner bags to become wet during storage. Do not handle inner bag with wet hands or wet gloves. Do not put concentrate or diluted material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal. In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: (800) 331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Container Handling

Non-refillable container: Do not reuse or refill this container. When all water soluble bags are used, the outer package should be clean and may be disposed of in a sanitary landfill, by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke. If outer container contacts formulated product in anyway, it must be triple rinsed with clean water. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and close tightly. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

ACCEPTED
with COMMENTS
In EPA Letter Dated
SEP 27 2012

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.

279-3108

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: Coveralls; Waterproof gloves; and Shoes plus socks.

BUFFER ZONES

Vegetative Buffer Zones

Construct and maintain a minimum 10-foot-wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or natural ponds; estuaries; and commercial fish farm ponds).

Only apply products containing bifenthrin onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21pp. <http://www.in.nrcs.usda.gov/technical/agronomy/newconbuf.pdf>.

Buffer Zone for Ground Application (groundboom, overhead chemigation, or airblast) – Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for ULV Aerial Application - Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for Non-ULV Aerial Application – Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Spray Drift Requirements

Wind Direction and Speed

Only apply this product if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph.

Temperature Inversion

Do not make aerial or ground applications into temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

Droplet Size

Use only Medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

Additional Requirements for Ground Applications

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.

For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product through any type of irrigation system.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Grass Forage, Fodder, and Hay Group and Grass Grown for Seed, Pasture and Rangeland (including: bahiagrass, barnyardgrass, bentgrass, Bermudagrass, Kentucky bluegrass, big bluestem, smooth brome, buffalograss, reed canarygrass, centipedegrass, crabgrass, cupgrass, dallisgrass, sand dropseed, Kentucky fescue, meadow foxtail, eastern gamagrass, side-oats grama, guinea grass, Indian grass, Johnsongrass, lovegrass, napiergrass, oatgrass, orchardgrass, pangolagrass, paspalum, redtop, Italian ryegrass, St. Augustine grass, sprangletop, squirreltailgrass, stargrass, switchgrass, timothy, crested wheatgrass, wildrye grass and zoysia grass. Also included are sudangrass and sorghum forages and their hybrids.

Insects Controlled	Rate of Application	Method of Application
Alfalfa Caterpillar Alfalfa Looper Alfalfa Weevil Blue Alfalfa Aphid1 Cutworms Egyptian Alfalfa Weevil (larvae & adult) Flea Beetles Green Cloverworm Green Peach Aphid1 Hornworms Meadow Spittlebug Pea Aphid1 Potato Leafhopper Spotted Alfalfa Aphid1 Threecornered Alfalfa Hopper Soybean Caterpillar Webworms	2.1 to 5.4 oz/A (0.033 to 0.1 lb ai/A)	Apply as insects appear in sufficient volume of water to ensure thorough coverage of foliage. Use higher recommended dosage for increased pest pressure or for increased residual pest control. Do not exceed maximum allowable rate. Apply in a minimum of 2 gallons of finished spray per acre by aerial equipment or

4 8 4

Armyworm, southern Armyworm, true Armyworm, yellowstriped Ant spp. Cereal Leaf Beetle Chinch Bug Cricket Grass Mealybug Grasshoppers Range caterpillar Stink Bugs	3.2 to 6.4 oz/A (0.05 to 0.1 lb ai/A)	10 gallons per acre by ground equipment. Higher volumes of finished spray may improve insect control under high temperatures, when foliage is dense and/or when insect pressure is high.
Armyworm, fall ² Black grass bug		
Hunting bill bug Plant bug spp.	6.4 oz/A (0.1 lb ai/A)	

Do not apply more than 0.2 lbs active ingredient per acre per season.
Do not make applications less than 14 days apart.
Applications may be made up to 30 days prior to harvest for forage and hay.
¹Aphid control may be variable depending on species present and host-plant relationships.

Dealers Should Sell in Original Packages Only.
Conditions of Sale and Limitation of Warranty and Liability:

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. To the extent consistent with applicable law, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.

To the extent consistent with applicable law, FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE

ELECTION OF FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

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2012-05-17 279-3108 label revision



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USA

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fmc.com

May 8, 2014

Areta Wowk
Pesticide Control Program
NJ Department of Environmental Protection
Pesticide Evaluation and Monitoring
PO Box 437
Trenton, NJ 08625-0437

RE: Section 18 Letter of Support

Dear Ms. Wowk:

As the registrant for Brigade WSB Insecticide/Miticide (EPA Reg. No. 279-3108), FMC fully supports the proposed renewal of a Section 18 emergency exemption use of the product in New Jersey on apples, peaches, and nectarines to control the Brown Marmorated Stink Bug (*Halyomorpha halys*).

FMC is committed to working with IR-4 in their program to obtain Section 3 registrations for use of bifenthrin on pome and stone fruits. IR-4 conducted field magnitude of the residue trials on apples (PR 11016) and peaches (PR 11017) in 2013.

Please contact me by telephone at 215-299-6717 or by email at tim.formella@fmc.com if you have any questions on this matter.

Sincerely,

A handwritten signature in black ink that reads 'Timothy M. Formella'. The signature is written in a cursive, flowing style.

Timothy M. Formella
Senior Product Registration Manager
FMC Corporation

May 8, 2014

Ms. Areta Wowk
Pesticide Control Program
NJ Department of Environmental Protection
Pesticide Evaluation and Monitoring
PO Box 437
Trenton, NJ 08625-0437

Ms. Tawanda Maignan, Team Leader
Emergency Response Team
U.S. EPA Office of Pesticide Programs (7504P)
Document Processing Desk (EMEX)
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

RE: Regional FIFRA Section 18 Emergency Exemption Re-Certification for Bifenthrin Use
on Pome Fruit and Stone Fruit

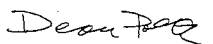
I am writing this as a letter of support for the renewal of the Section 18 labels for bifenthrin use in tree fruit (apples, peaches, and nectarines). This material is one of the most effective tools we have for the control of the brown marmorated stink bug (BMSB). Surveys done by our extension programs during 2013 showed that BMSB damaged up to 44% of the New Jersey apple crop and 18% of the peach crop on average). Some apple blocks experienced up to 82% damage. In economic terms this insect was responsible for up to \$30,000 to \$50,000 of crop loss on some farms. All indications from overwintering BMSB populations point to a heavy population in 2014, which will likely lead to increased pest pressure.

Bifenthrin is particularly important since the loss of endosulfan on tree fruit. We see the use of bifenthrin partially as a replacement for endosulfan (Thionex). We do not seek any changes for bifenthrin use patterns from those approved in 2012 for apples, peaches and nectarines. We would again seek the following use pattern for 2014: 1) Application of .08 to .20 lb a.i. per acre per application, with a .5 lb a.i. per acre maximum per season, 2) Applications made no less than 30 days apart, and 3) Having a 14 day preharvest interval.

This letter includes endorsement for the products marketed by FMC (Brigade WSB) and UPI (Bifenture EC and Bifenture 10DF) for which section 18 labels were obtained in 2013 under the same Section 18 application originally submitted by Bryan Butler at the University of Maryland.

Thank you for your attention to this matter.

Sincerely,



Dean Polk
Professor and Statewide Fruit IPM Agent

Request for an Expedited Emergency Exemption (Section 18) for Use of Bifenthrin against Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål), in Eastern Fruits

Submitted on March 13, 2014 by Bryan R. Butler Sr.

University of Maryland Extension

SUMMARY

Brown marmorated stink bug (BMSB) continues to represent a significant risk to tree fruit production in the mid-Atlantic region, with some variation in risk level among states, individual orchards within states, and crop type/variety. Bifenthrin is an important management tool for BMSB, having shown excellent efficacy against it in laboratory and field studies in 2011. No alternative management options for BMSB became available in the preceding 12-month period. The loss of endosulfan for use in stone fruits on July 31, 2012 further reduced grower options for managing BMSB in peaches. No changes in the bifenthrin use patterns approved in 2012 for pome and stone fruit crops are sought for 2014.

IR-4 performed studies for full Section 3 registrations for bifenthrin on apples (PR 11016) and peaches (PR 11017) in 2013. A letter from IR-4 outlining their support for pursuit of full registration and a list of residue studies they have performed on apple and peach. (attached)

BMSB STATUS UPDATE

The following narrative addresses the current status of BMSB as a pest of tree fruits in mid-Atlantic orchards, in support of an expedited emergency exemption request for use of bifenthrin in apple, peach and nectarine orchards in Virginia, West Virginia, Maryland, New Jersey, Pennsylvania, Delaware, North Carolina and the Hudson Valley of New York.

Economic Impact in 2012 and 2013: The information used to develop the following summary of BMSB impact to mid-Atlantic tree fruits in 2012 and 2013 was obtained from fruit processors (2), the National Peach Council, and research and extension entomologists from NC, VA, WV, DE, MD, PA, and NJ. Data from entomologists are based on grower and orchard surveys and/or the results from a research study. Quantifying the regional economic impact of BMSB injury to pome and stone fruit following the 2012 and 2013 seasons has proved to be virtually impossible due to 1) a general lack of BMSB-specific injury records, 2) an unknown overall impact on the grading and value of BMSB-injured fruit received by processors, and 3) a lack of data on wholesale and direct market value losses.

Collection of damage data has proven to be particularly problematic as the packers and processors do not specify the nature of the damage that causes culls; thus, it is impossible to clearly attribute culls to any one reason.

Another issue in several states was that the population surge in September and damage went unnoticed until it began to be removed from storage which will continue for some time. As a result, damage that was not visible at harvest was detected much later after apples had passed through channels of trade to packers and processors, who unfortunately do not typically collect pest-specific injury data relative to storage losses (i.e., these are apples that were already inspected, graded, and stored shortly after harvest—after they are in possession of the packer/processor, subsequent losses are simply culled out without rigorous data collection that would result in a downgrade to a grower, for example.)

It has been very difficult to clarify how the amount of damaged fruit translates into how great a monetary loss is experienced by the producer. (i.e., does 20% damage really equal 20% total loss?) It can be total loss leading to rejection of a load or culling fruit for fresh market sales. It can end up on the ground in a pick your own operation, which is very difficult to track, or some fruit can be processed at a reduced value. Regardless, there is new loss to producers never experienced prior to the emergence of BMSB in the mid-Atlantic which has proven to be very difficult to manage with the materials currently available.

National Peach Council (February 28, 2013) (stone fruit) In our surveys of peach producers and crop insurance representatives in the mid-Atlantic region where the infestation of BMSB is most severe, we learned the following:

- 2012 crop damages ranged from 3 percent to 22 percent due to the feeding damage caused by the pest.
- While these damages were down slightly in some areas, others continue to experience severe injury as a result of the pest. The continued use of pesticides assists the growers in combating the pest; specifically bifenthrin helped to control the pest.
- Weather conditions from year to year have varied dramatically and remain an unknown factor in the quest to combat the BMSB. With the milder than normal winter that has concluded, the impact of the BMSB to the 2013 crop remains to be seen and the current use of bifenthrin and dinotefuran (Venom[®]) appears to have a positive impact on minimizing the damage to peaches caused by the BMSB.
- The states continuing to feel the largest impacts of the BMSB are Maryland, Virginia and Pennsylvania, with New Jersey close behind and the Hudson Valley of New York beginning to show over 20% damage to fruit and management of BMSB becoming increasingly important. North Carolina continues to be a frontier state with movement of BMSB into orchards increasing. When the March 2013 Non-citrus Fruits & Nuts 2012 Preliminary Summary is published by USDA, National Agricultural Statistics Service, we expect that it will show the value of the 2012 utilized production was up in most of these states (versus 2011) and this is directly tied to the price, which was up as well. However, the overall production costs due to increased use of spray materials to combat BMSB and the current labor situation mitigated any

actual bottom line gains to the peach producers in 2012. This is the third consecutive year that the growers have experienced this impact. New Jersey (April 18, 2012) “Out of 89 apple samples, an average of 9.75% damage was found, some fruit with over 10-15 feeding sites per fruit. Out of 38 peach and nectarine samples, an average of 20.6% fruit damage was found. Some blocks had up to 55% damaged fruit. ...those that are harvested after mid-August tended to be most highly damaged. Most damaged fruit in the worst infested blocks had over 10 feeding sites per fruit. ... 5% damage in peaches could cost a grower \$390/acre, while 20% damage may cost a grower over \$1,500/acre (based on late season wholesale prices @ \$13/box). Retail losses would be even higher.”

Brown Marmorated Stink Bug Damage in Southern New Jersey Orchards – 2013

Average Visual Damage from BMSB in South Jersey Orchards 2013 – Late Varieties

Average % Apple Damage	26
Maximum % Apple Damage	82
Average % Peach Damage Late Varieties	4.1
Maximum % Peach Damage Late Varieties	24

Maryland - Destructive fruit sampling of seven orchards that produced both apples and peaches in MD (estimated to represent about 20% of the MD industry) showed that average total crop loss to apples ranged from 3 to 82% (average = 20.06%). For peaches, the average total crop loss ranged from 0 to 39% (average = 10.53%). It should also be noted that this level of control was achieved using Thiodan which was not be available for use on peach in 2013 as growers supplemented bifenthrin to achieve acceptable level of control. A 2013 chemical trial at the Western Maryland Research and Education Center revealed up to 90 % fruit injury in apples in the program not using bifenthrin and in a program using bifenthrin damage was only 2% from destructive fruit sampling at harvest.

West Virginia - “... damage at harvest ranged from 1% - 19% in peaches (regional average = 7.3%). In apples, the range was from 0% - 22% (regional average = 7.1%). In terms of severity, some of the fruit was still marketed directly to consumers, some was downgraded from fresh market to processing, and some was culled completely. ... growers treated much more aggressively, increasing their overall costs in terms of materials, fuel, time, labor, and equipment maintenance. It should also be noted that this level of control was achieved using thiodan which will not be available for use on peaches in 2013. We did see substantial pressure throughout the season. Growers who were not aggressively spraying until the end of the season at all experienced increasing injury.”

In 2013 USDA ARS found in a season-long management program for BMSB in apple that was conducted on station, including 4ARM (2 complete) applications of bifenthrin at the maximum rate as part of the program. When evaluated in comparison of blocks not managed with any materials effective against BMSB (just did herbicides, fungicides and lep-materials). At harvest,

the % injury in the treated block was $12.9\% \pm 4.4$ vs. the control at $47.8\% \pm 5.4$. This is only BMSB injury, but shows that injury increased 4-fold in the absence of BMSB-effective materials that included bifenthrin.

Delaware - Although the percentage damage in fruit from BMSB was a bit lower in 2012 versus 2011, with the freezes and price of fruit this past year being much higher, the dollar losses were higher than in 2012 v 2011. Apple prices were up probably 40% in 2012 v 2011 and peach prices were up probably 20% from the year prior. With that said, the dollar losses from BMSB damage would be higher in 2012 versus 2011. Growers calculated the loss from BMSB in fruit in 2012 to be a \$450 per acre loss.

The 2013 treatment costs for the Stink Bug treatments alone in Delaware averaged \$63 – 75/acre for peaches. Peaches -- Fruit damaged by stink bugs and placed in the cull category was about 10%. Once a peach is put in the cull category it is no longer has value.

Apples - The percentage of culls due to stink bug damage on the packing line was in the 15-20% range. Overall cull rate was 30% , so about half of that percentage was from BMSB. Growers indicate that if they do not follow a very regimented and "cadillac" spray program, the damage would be severely higher.

Apples put in the cull category are sold for processing at about 10-15% of the fresh market rate

A study involving entomologists from several institutions was conducted in fall 2011 and 2012 to measure the distribution of BMSB injury to late season apples in commercial apple orchards in VA, MD, PA and NJ. Fruit samples were taken from the top, middle and lower canopy of trees in border, interior and intermediate orchard zones in 18 orchards just before commercial harvest of the selected varieties. These samples were assessed for external and internal injury from BMSB. Across the orchards, total BMSB injury ranged from 3.11 to 79.6% (mean = $32.4 \pm 4.9\text{SE}$) in 2011 and averaged 25.9% damage in 2012.

Overall, average % BMSB injury is 25.09. This is based on 450 fruits sampled per block.

VA	%injury	MD	%injury	PA	%injury	NJ	%injury
PG	3.11	B	17.33	D	79.55	H	27.77
BS	4.88	G	41.56	R A	24.4	H	14.44
JS	19.55	M	4.22	R B	8.66	S	17.11
				F	44.22	H	29.11
				B	40.44		
Ave.	25.09						

In summary, BMSB injury was lower overall in 2011 than in 2010 and varied widely among states and orchards. Although lower levels of fruit injury in many orchards likely reduced the direct economic impact of BMSB, the increased cost of spray programs was widely reported. Some states within the region (e.g., NC and NY) continued to report low levels of injury, while highest injury reports continued to be from areas most heavily impacted in 2010.

Response to BMSB by Tree Fruit Producers in 2012 and 2013: Many growers implemented very aggressive insecticide-based management programs in 2012 and 2013, particularly in late August into September. These programs often involved much more frequent insecticide applications than would be used typically and the use of products that would not ordinarily be considered appropriate for post-bloom applications (based on their potentially disruptive effects on natural enemy populations). In general, these programs yielded much lower levels of BMSB injury at harvest than in 2010 but higher than in 2011, with more damage than expected showing up on fruit being removed from storage. However, they are widely viewed by growers and researchers as being unsustainable, adding cost and significantly reversing the cumulative effects of integrated pest management practices. Possibly, some of the damage that has shown up late could have been avoided but bifenthrin was only available starting in July of last year. With bifenthrin, the early season damage could be prevented and its use may also help keep populations lower so there is a smaller autumn population to manage. This level of damage may also be more severe in 2014, particularly on peach as endosulfan loses its EPA registration. Without bifenthrin as a tool for BMSB control, damage levels could possibly rise to 2010 levels which could have a devastating effect on producers in the mid-Atlantic. There is a very real potential that some growers will actually run out of ANY tools due to exhausting seasonal maximums on existing products, and the loss of endosulfan on peaches.

Current BMSB Pest Status: Each season since 2010 has been different regarding BMSB overwintering and population development during the season. It has proven very difficult to predict pressure or impact but suffice to say there has been injury every year in orchards across the mid-Atlantic. The numbers of adult BMSBs seeking overwintering sites in private homes and other structures was significantly higher throughout the mid-Atlantic region in fall 2012 and 2013. This could contribute to higher levels of injury to peaches and apples in 2014. Although there were some reports of predation and parasitism of BMSB in 2011, 2012 and 2013 it is unclear that the effects of these agents were sufficiently widespread or prevalent to impact the overall population.

Despite what appeared to be lower numbers of overwintering BMSB in 2011, the population built during the entire growing season with many locations experiencing very high numbers in orchard from late August through the completion of harvest in apples. Based on our collective experiences in 2010, this risk is of significant concern and does not warrant complacency. Recently, overwintering BMSB have been collected from areas containing many thousands of individuals sheltering in barns and outbuildings adjacent to commercial tree fruit orchards in Maryland, and there are similar circumstances encountered in other states. New information on

the bug's use of natural overwintering harborages in forests has been generated recently. The effects of weather on BMSB survivorship during winter are unknown. With only three years of experience with BMSB in the mid-Atlantic region, it is impossible to predict the rate at which populations will build and spread in 2014 and the extent to which it will threaten fruit orchards at various points throughout the season. It does appear that baseline BMSB pressure has varied substantially among orchards within a general area in the mid-Atlantic states for, as yet, unknown reasons. This, coupled with the loss of endosulfan on stone fruit, puts fruit at continued increased risk 2014 creating the need for products to fill that void. The biggest stone fruit grower in Virginia said to me at an extension meeting last week that he feels that he can manage BMSB injury in peaches and nectarines "... if we have bifenthrin."

Management Recommendation for 2014: BMSB management recommendations for 2014 continue the use of alternate-row-middle sprays to maintain fresher residues. This recommendation follows grower experiences in affected states and research data from 2012 suggesting that the residual activity of many products against BMSB is relatively short. Although trapping strategies are making great strides, they have not advanced to the point of being used as a predictive tool and thus grower decisions have to be made based on either actual presence of BMSB in the orchard or damage that has already occurred. For these reasons, it is imperative that they have access to the most effective materials to limit damage to their crop.

- Efficacy comparisons between bifenthrin and currently registered insecticides that are conducted under actual growing conditions indicate in both field and laboratory studies that bifenthrin continues to be one of the most effective options for controlling BMSB. (See attached)

Field-Based Residual Efficacy of Selected Insecticides Against Brown Marmorated Stink Bug, Halyomorpha halys (Stål)

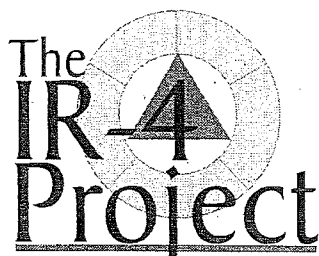
January 7, Tracy C. Leskey

USDA-ARS

Appalachian Fruit Research Station

2217 Wiltshire Road

Kearneysville, WV 25430-2771



Providing Safe and Effective Pest
Management Solutions for
Specialty Crop Growers

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Princeton, NJ 08540
732.932.9575
fax: 609.514.2612
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February 27, 2014

To: Bryan R. Butler Sr.
Extension Agent, Agriculture and Natural Resources
University of Maryland Extension
700 Agriculture Center
Westminster, Maryland 21157

From: Keith Dorschner, Ph.D.
Entomology Program Manager/IR-4 Project

RE: IR-4 support for registration of bifenthrin on apple and peach
Progress towards registration in support of a potential Section 18

Dear Bryan,

The IR-4 Project has a national research effort for the full Section 3 registration of bifenthrin insecticide on apples and peaches. These studies are extremely important for the control of Brown Marmorated Stink Bug (BMSB), an invasive species causing great harm to these crops in Maryland as well as other states.

IR-4 initiated Magnitude of the Residue studies in 2013 for bifenthrin on peach and apple. For peach, field trials were conducted in NJ (3 trials), NY, CA (5 trials), NC (2 trials), TX, MI, AR. Apple trials were conducted in NJ (3 trials), ID, CA, CO, WA (3 trials), NY, MI (2 trials), and NC. The use pattern tested was the same for both crops: 3 applications at a 21 day treatment interval with the last application 14 days before harvest. The first application was made at a rate of 0.1 lb active ingredient (a.i.) per acre and the last two applications were made at 0.2 lb a.i./acre/application.

The plots were harvested and apple and peach samples were shipped frozen to the IR-4 Analytical Facility at the University of Florida for analysis. One trial provided apple samples for processing into juice and wet pomace at the University of Idaho Food Technology Center in Caldwell, Idaho. These samples were also shipped frozen to the University of Florida lab. Samples have not yet been analyzed for bifenthrin residues.

IR-4 fully supports the registrations of bifenthrin on peach and apple for the control of BMSB. Please let me know if I may provide additional information.

Sincerely,

Keith Dorschner

IR-4 Entomology Program Manager

*Major funding for IR-4 is provided by Special Research Grants and Hatch Act Funds from USDA-CSREES,
in cooperation with the State Agricultural Experiment Stations, and USDA-ARS.*

